NAVAL WAR COLLEGE
Newport, R.I.

DEEP BATTLESPACE SYNCHRONIZATION: ACHIEVING UNITY OF EFFORT

by

Robert J. D'Amico, Major, U.S. Air Force

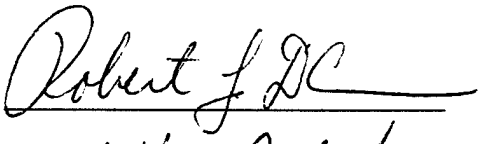
William D. Orton, Lieutenant Commander, U.S. Navy

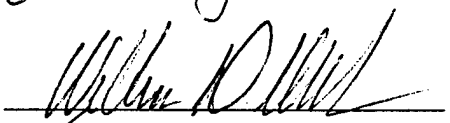
Kevin M. Woods, Major, U.S. Army

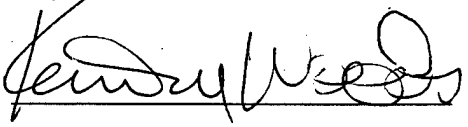
As An Advanced Research Project

A paper submitted to the Director of the Advanced Research Department in the Center for Naval Warfare Studies in partial satisfaction of the requirements for the Master of Arts Degree in National Security and Strategic Studies.

The contents of this paper reflect our own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: 

Signature: 

Signature: 

13 June 1997

Paper directed by
John B. Hattendorf
Director, Advanced Research Department

Abstract of

DEEP BATTLESPACE SYNCHRONIZATION: ACHIEVING UNITY OF EFFORT

This case study examines the implementation of deep battlespace synchronization (DBS) within geographic combatant commands and joint task forces. The study is important to the joint military operations literature because it offers a comprehensive analysis of DBS which never has been conducted. Fragmented research about individual service missions, functions, and weapon systems is prevalent.

The manuscript investigates the research question which asks: "How does a joint force commander synchronize activities in deep battlespace with the greatest unity of effort while achieving campaign objectives?" The paper is organized using a contingency framework for analyzing various organizational responses to DBS within changing and uncertain environments. It relies upon a triangulated research design including interviews, archival data, and secondary documentation.

Findings are presented from the geographic combatant commands. In general, commanders-in-chief or joint force commanders adapt mechanistic organizational structures to cope with environmental challenges. The functions and processes used by each command to synchronize deep battlespace activities are presented. Although each command uniquely crafted an organizational structure satisfying environmental challenges, some commands have synchronized their deep battlespace activities better than others.

Two levels of recommendations are offered. Short term recommendations concentrate on changes to make now to improve DBS throughout the commands. Long term recommendations focus on future organizational structure changes helping warfighters exploit opportunities provided by emerging systems technology.

REPORT DOCUMENTATION PAGE

1. Report Security Classification: UNCLASSIFIED			
2. Security Classification Authority:			
3. Declassification/Downgrading Schedule:			
4. Distribution/Availability of Report: DISTRIBUTION STATEMENT B: APPROVED FOR DISTRIBUTION TO US GOVERNMENT AGENCIES ONLY			
5. Name of Performing Organization: Dean of Academics Office			
6. Office Symbol: 1B	**7. Address**: NAVAL WAR COLLEGE 686 CUSHING ROAD NEWPORT, RI 02841-1207		
8. Title: Deep Battlespace Synchronization: Achieving Unity of Effort			
9. Personal Authors: Maj Robert J. D'Amico, U.S. Air Force; LCDR William D. Orton, U.S. Navy; Maj Kevin M. Woods, U.S. Army			
10.Type of Report: FINAL	**11. Date of Report**: 2 June 1997		
12.Page Count: 224			
13.Supplementary Notation: A paper submitted to the Director, Advanced Research Department in the Center for Naval Warfare Studies in partial satisfaction of the requirements for the Master of Arts Degree in National Security and Strategy Studies. The contents of this paper reflect our personal views and are not necessarily endorsed by the NWC or the Department of the Navy.			
14. Ten key words that relate to your paper: Deep battle, deep battlespace, synchronization, unit of effort, contingency framework, centralization, decentralization, mechanistic structures, organic structures			

15.Abstract: This case study examines the implementation of deep battlespace synchronization (DBS) within geographic combatant commands and joint task forces. The study is important to the joint military operations literature because it offers a comprehensive analysis of DBS which never has been conducted. Fragmented research about individual service missions, functions, and weapon systems is prevalent.

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16.Distribution/ Availability of Abstract	**Unclassified**	**Same As Rpt**	**DTIC Users**
17.Abstract Security Classification: UNCLASSIFIED			
18.Name of Responsible Individual: Dean of Academics, Naval War College			
19.Telephone: 841-2245		**20.Office Symbol:** 1	

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ACKNOWLEDGEMENTS

The authors would like to acknowledge several important organizational and individual contributions to this manuscript. The U.S. Naval War College provided both travel funding, time, equipment, and advice for this research. Additionally, without the cooperation of the interviewees from the geographic combatant commands and other joint service organizations, this research would not have been possible. Interviewees openly welcomed the chance to express their viewpoints and to share their knowledge with the researchers.

The authors also benefited from feedback from several individuals. Colonel Phillip S. Meilinger, Professor John B. Hattendorf and Colonel (sel) Robert A. Coe each provided guidance throughout the research period. Colonel Meilinger supervised the project. Without his "warm" remarks, the authors surely would have remained in the cold.

Despite the sage advice of these scholars, as always, any errors of fact, logic, interpretation, or conclusion are the total and sole responsibilities of the authors.

DEEP BATTLESPACE SYNCHRONIZATION: ACHIEVING UNITY OF EFFORT

CHAPTER 1

INTRODUCTION

Deep battlespace synchronization (DBS) is a critical operational design element for military planners.[1] With drastically reduced military budgets, commissioned studies which evaluate the appropriateness of services' roles and missions, and a post-Cold War environment which has each military service searching for valid organizational purposes,[2] the synchronization of joint actions in deep battlespace has become an important planning and execution factor. Intuitively, DBS may allow for greater economy of force and unity of effort in a joint task force (JTF) because actions are integrated--avoiding fratricide, removing redundancy, and negating independent action. This case study offers an analysis of DBS which goes beyond practical intuition. Rather, the study examines DBS through an analysis of the geographic combatant commands' joint exercise programs and experiences in real-world contingencies. Since Operation Desert Storm, actions in deep battlespace have been dominated by the Joint Force Air Component Commander (JFACC). However, with the advanced weapon systems which are fielded currently or will be imminently, this area of dominance by the JFACC must be examined.

The purpose of this study is to examine how DBS can help commanders-in-chief (CINCs) achieve their campaign objectives with greater unity of effort. This case study offers

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[1] Milan Vego, "Operational Design" (U.S. Naval War College: Joint Military Operations Department, August 1996).

[2] U.S. Commission on Roles and Missions of the Armed Forces, *Directions for Defense: Report of the Commission on Roles and Missions of the Armed Forces* (Washington, D.C.: Government Printing Office, 1995). This is especially true during the Quadrennial Defense Review.

an evaluation of hypotheses related to the central research question: "How does a joint force commander (JFC) synchronize activities in deep battlespace with the greatest unity of effort while achieving campaign objectives?"[3] This paper offers a detailed evaluation of DBS which is grounded on accepted research methodology.

DBS activities include more than targeting, creating an air operations plan, or planning and executing an air tasking order. Among the issues are deception, information warfare, naval fires, amphibious objective areas, and special operations forces' direct action and special reconnaissance missions. Individual service expertise must be connected in a joint deep battlespace plan to efficiently and effectively achieve campaign objectives.

This research project used case study analysis to assess DBS implementation results that were related to operational plan (OPLAN) development and execution. The research design was a case study which spanned over a decade (1986-1997) and included multiple perspectives and units of analysis. The search for factors influencing the synchronization of deep battlespace activities was guided by interviews, archival research, published literature, and other evidence. Data sources included over 50 hours of recorded personal and telephone interviews, a search of the Joint Universal Lessons Learned System (JULLS), individual service databases, and secondary documentation. The primary methods of analysis were comparisons of data sources and pattern-matching.[4]

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[3] This research project focuses on how a joint force commander (JFC) or commander-in-chief (CINC) synchronizes deep battlespace activities. Some geographic combatant commanders rely upon joint task forces to conduct their warfighting actions, while others perform their own warfighting actions. This manuscript discusses both JFC and CINC roles in deep battlespace synchronization (DBS) interchangeably.

[4] Robert Yin, *Case Study Research: Design and Methods*, 2nd ed. (Thousand Oaks: SAGE Publications, 1994.); Kathleen Eisenhardt, "Building Theories from Case Study Research," *Academy of Management Review*, 14(4), 1989, 532-550.

Studying DBS is important to help understand how commanders use operational art in accomplishing their given missions.[5] Major Joint Chiefs of Staff (JCS)-sponsored exercises and real-life contingencies were chosen as test cases because operational commanders' decision-making processes and outcomes were readily available in archives. A case study of DBS provides operational insights for military commanders and an analysis of this combat issue.

Significance of Study

Analyzing the implementation effects of DBS has significance to the field of joint military operations. First, with the drastic movement away from big military budgets and Cold War relationships, studies analyzing the effectiveness of OPLAN development and execution are significant contributions to the literature. This study analyzes unity of effort by evaluating deep battlespace synchronization. Because of the Department of Defense's (DoD's) downsizing environment, studies such as this which help military professionals think about battlespace redundancies and complementary joint activities are significant literature contributions. Second, current literature thrusts are fragmented. Authors have written about deep battlespace in terms of specific missions, weapon systems, or service perspectives. Additionally, much of the literature focuses on tactical level studies. No recent study makes a comprehensive analysis of deep battlespace activities. This study attempts to take a comprehensive look at deep battlespace synchronization at the operational level of war. Finally, this is the first military operations study which uses Duncan's contingency framework

[5] Milan Vego, "Operational Art" (U.S. Naval War College: Joint Military Operations Department, August 1996).

as an analytical tool to examine deep battlespace issues.[6] The contingency framework is an appropriate model for this analysis because it has been peer reviewed, describes environmental uncertainties, and offers organizational responses to cope with the uncertainty. CINCs operate in constantly changing and complex environments. Duncan's model describes how organizations can adapt to these environments.

In short, the case study makes these contributions to the military operations literature: it is the first comprehensive account of DBS which assesses unity of effort impacts; it provides behavioral and contextual factors which influence DBS at the JTF level; and, it applies the contingency framework to a defense environment. Therefore, the unit of analysis and linkage to established theory distinguishes this research from previous studies.

The JCS exercise program and real-world contingencies offer special cases to evaluate DBS because the lessons learned are archived, OPLANs are modified, campaign plans are changed, doctrine is developed, and budgets/force structures are rationalized. The exercise program is well funded with financial support for personnel augmentation, consultants, DoD mentors, and elaborate modeling and simulation support.

Organization of Paper

The remainder of the case study proceeds as follows. A review of the literature is examined in Chapter Two. In Chapter Three, the problem and analytical framework is

[6] Duncan's contingency framework will be described fully in Chapter 3. In short, it is a descriptive framework describing external environments along two dimensions: simple/complex and static/dynamic. Organizational responses to their own unique environments should be customized to adapt to environmental uncertainty.

discussed. Chapter Four describes the case study research design and methodology used to examine the research hypotheses. Chapter Five presents and discusses the findings, while Chapter Six makes concluding comments and recommendations.

CHAPTER TWO

LITERATURE REVIEW

Much research has been conducted by both academicians and practitioners on deep battlespace issues. In general, the literature investigates command and control (C^2), wartime mission, service-specific or weapon system issues. The overriding thrust among such papers is identifying doctrinal problems with deep battlespace. The conclusions often state that joint doctrine does not address adequately the relationship between the Joint Force Land Component Commander (JFLCC) and the JFACC within their constrained areas of operations. Moreover, the role of naval forces in deep battlespace research is essentially ignored.

Joint doctrine which guides operations between the JFLCC and JFACC supports a segmented battlespace to manage more easily separate areas of operations and to prevent fratricide. However, current weapon technologies do not support this fragmented and linear approach in a theater of war. For example, the Joint Surveillance, Targeting, Acquisition, and Reconnaissance System (JSTARS) provides an almost instantaneous picture of the enemy ground order of battle to the JFLCC. The Airborne Warning and Control System (AWACS), Aegis Weapon System, Airborne Battlefield Command and Control Center (ABCCC), and other systems provide a picture of the enemy air order of battle to the JFACC and Joint Force Maritime Component Commander (JFMCC) through the Joint Tactical Information Distribution System (JTIDS) and Cooperative Engagement Capability. The JFACC, JFMCC and JFLCC have the ability to almost instantaneously receive intelligence information and they each possess weapon systems which can precisely attack close and deep targets.

A comparison of service doctrine shows differences in air-land battlespace philosophy.[7] This difference in focus exposes a gap between close and deep battlespace which limits campaign planning.[8] Within deep battlespace planning, among the key operational activities are command and control, joint fires, coalition participation, deep targeting, creating tasking orders, and gathering combat assessment.[9] These and other deep activities must be integrated.

Operational commanders can observe enemy capabilities by using advanced systems such as JSTARS, JTIDS, and space-based systems. Commanders must decide which targets to attack immediately, which ones to attack in the near future, and which ones to attack later or not at all. The essence of the deep battlespace problem, however, is to determine who should decide which targets to hit, when to hit them, and with what weapon systems. This question is debated emotionally among service representatives because defense budget reductions force the services to conduct more military actions with fewer assets; while at the same time, technological advances increase each service's capability to attack targets in deep battlespace.

This section discusses literature and doctrinal thrusts in this order: deep battlespace, synchronization, deep battlespace synchronization, unity of effort, and methods of control. As shown in Figure 1 below, the literature focus moves from a general look at deep battlespace

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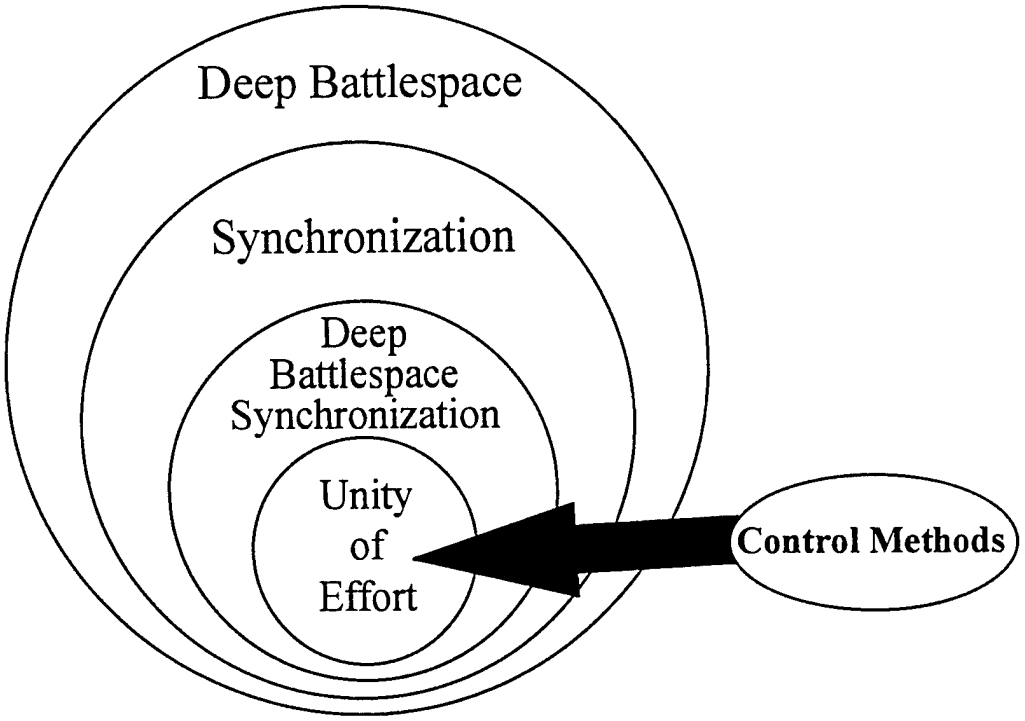
[7] Charles W. Robinson, , "Airland Battle Tactics: An Analysis of Doctrine and Experience" (Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1994).

[8] Harry L. Leiferman, "Indirect Fires and the Combined Arms Team," *CTC Quarterly Bulletin*, March, 1996; Samuel R. White, "Development of the Brigade Scheme of Fire Support," *Combined Arms Center Newsletter*, July, 1995; Anthony M. Jareb and Michael B. Sagaser, *Deep Air Support Requirements for Marine Combat Operations Ashore* (Alexandria, VA: Center for Naval Analysis, January 1989).

[9] U.S. Joint Staff, *Universal Joint Task List* (Washington, D.C.: The Pentagon, 1995) v.p.

and synchronization, toward a more narrow view of control mechanisms which can be used to ensure unity of effort.

FIGURE 1 - LITERATURE UMBRELLA



Deep Battlespace[10]

In practical military terms, the word deep refers to battlespace areas in relation to friendly surface forces. Deep at its shallowest point can be viewed as just outside organic direct and indirect fire weapons. Deep, at its maximum point, is normally defined as the outer boundary of an assigned area of responsibility. The term deep, when used as an adjective, describes the primary focus of the weapon effect or action. Deep weapon systems, for

[10] The Navy does not think of its maritime environment in terms of deep and close battlespaces. For this reason, the literature section essentially omits contributions to deep battlespace synchronization from a naval perspective. The authors acknowledge the contributions of naval forces in the air-land deep battlespace discussion and present findings in Chapter 5 in the section on U.S. Atlantic Command.

instance, are normally focused on targets which cannot be engaged by a ground-based direct fire weapon. Deep attacks refer to attacking enemy forces before they are within the range of ground-based direct fires.[11]

Air Force and Army views differ regarding deep battlespace. The Air Force advocates that the air commander should decide which targets to attack in deep battlespace and when to attack them for interdiction, strategic attack, and counter air missions. In other words, the Air Force viewpoint holds that when the JFACC is the supported commander for operations outside of the JFLCC's area of operation, the JFACC should make deep targeting decisions because the JFACC has the "preponderance of assets."[12] Its position is grounded in *Joint Pub 3-0*.[13] On the other hand, the Army is more actively interested in deciding which deep battlespace targets are attacked and when because they now have the limited means to independently shape battlespace by rapidly attacking targets with the Army Tactical Missile System (ATACMS) and Apaches today, or Longbow in the future.[14] Coupled with this deep attack capability is an ability to receive timely intelligence information provided with great clarity by JSTARS, unmanned aerial vehicles (UAVs), and other systems. The Army's position is also grounded in *Joint Pub 3-0*.[15] At base, the problem centers around the

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[11] U.S. Department of the Army, *FM 100-5: Operations* (Washington, D.C.: Headquarters Department of the Army, 1993) 7-12/13.

[12] U.S. Department of the Air Force, *JFACC Primer*, 2nd ed. (Washington, D.C.: Headquarters Department of the Air Force, 1994) 11.

[13] U.S. Joint Staff, *Joint Pub 3-0: Doctrine for Joint Operations* (Washington, D.C.: Government Printing Office, 1995) II-15.

[14] ATACMS is an Army deep attack missile system that can precisely destroy deep targets. The Army considers the Apache a maneuver asset which has the ability to execute close air support and some deep attack missions. The Longbow is a modernized Apache with increased capability to simultaneously destroy multiple targets.

[15] *Joint Pub 3-0*, IV-15.

interpretation of the junction between close and deep battlespaces, and the primary purpose of deep battle, which differs among services. The Air Force views deep operations as an end in itself, while the Army views deep battle as a means to reach its end. The Navy's position lies somewhere between the other services' views.

Like the Army, the Navy's approach to deep battle is driven by air- and sea-based sensors and missile ranges. However, the JFMCC's offensive perimeter is defined by the combination of ships, submarines, and aircraft weapon systems which are linked by an integrated command and control system. Naval offensive areas are similar to deep battlespace areas. The Navy conducts deep battlespace operations with its air- and sea-based precision guided weapons.[16] Additionally, the Navy conducts deep operations via a strike warfare commander or a land/sea-based JFACC.[17] Furthermore, the Navy uses both the Air Force and Army battlespace tenets to form its "critical operational capabilities." These capabilities are: command, control, and surveillance; battlespace dominance; power projection; and, force sustainment.[18]

Additionally, the need for close fighting is contested by various researchers because of the impact destroying deep targets can have on imminent close battle.[19] Some Air Force strategists think that attacking deep battlespace targets simultaneously with interdiction and strategic attack sorties makes a close battle moot because of the increased capability of

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[16] U.S. Department of the Navy, *Naval Doctrine Publication 1: Naval Warfare* (Washington, D.C.: Headquarters Department of the Navy, 1994) 64.

[17] U.S. Joint Staff, *Joint Pub 3-56.1: Command and Control for Joint Air Operations* (Washington, D.C.: Government Printing Office, 1994) II-8.

[18] *NDP 1*, 61.

[19] Michael J. McMahon, "The FSCL--A Concept Behind Its Times?" (Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1995).

precision guided attacks.[20] Other researchers advocate the position that deep operations may obviate the need for close battle because deep operations can independently achieve JFC objectives.[21] Each of these authors rely upon the current trend in revolutions in military affairs (RMA) or military technical revolutions to justify their positions. In short, the arguments generally say that RMAs have changed battlespace from reliance on maneuver to pure firepower as dominating activities. This dominance of firepower rather than maneuver for position advantage may make close battles irrelevant. Traditional Army thinking is that maneuvering formations in close operations are used to close with and destroy the enemy; deep operations are used to shape the battlefield.[22] Some Army strategists think that ground battle is inevitable in most conflicts because physical control of valid military objectives must occur for victory.[23]

Deep operations for the Air Force falls into the category of aerospace force application.[24] Strategic attack and interdiction missions constitute the operational level components of their force application missions. The two missions are linked not only by battlespace requirements of the JFACC air tasking order process, but also by JFC priorities--a theater-wide focus. The Army, on the other hand, views deep operations as the logical

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[20] Jeffery R. Barnett, *Future War: An Assessment of Aerospace Campaigns in 2010*, (Maxwell AFB, AL: Air University Press 1996).

[21] Glenn A. Gruner, "The Military Technical Revolution–Can Corps Deep Operations Now Independently Achieve Battle Objectives?" (Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1992).

[22] *FM 100-5, 2-5.*

[23] Steven Metz, *The Future of American Landpower: Strategic Challenges for the 21st Century* (Carlisle Barracks, PA: U.S. Army War College, 1996); U.S. Department of the Army, *Force XXI Operations*, TRADOC Pamphlet 525-5 (Fort Monroe, VA: Headquarters U.S. Army Training and Doctrine Command, 1994) 1-4.

[24] U.S. Department of the Air Force, *Air Force Manual 1-1*, Volume 1 (Washington D.C.: Headquarters Department of the Air Force, 1992,) 11.

extension of the close battlespace and, therefore, its focus is inward. The prevailing Army view of deep operations is that it sets the condition for decisive future operations. In both offensive and defensive operations, the Army uses deep operations to protect the forces, secure advantages for later engagements, and deny the enemy his objectives.[25]

Service Views Differ

Conflicting definitions of deep battlespace exist among various research papers.[26] There is no common understanding of deep battlespace boundaries, command and control, and missions. For the Army, deep battlespace is not bounded by a geographic point or area. To it, deep battlespace represents the battle area beyond the close battle which is commonly restricted by the maximum range of organic artillery fires or by the concept of operations for the ground scheme of maneuver. For the Air Force, battlespace beyond the fire support coordination line is normally considered deep operations. To it, deep operations involve interdiction, strategic attack, suppression of enemy air defenses, and counter air missions.[27]

Additionally, the Air Force, Navy and Marine Corps do not discuss deep battlespace in their basic doctrinal publications.[28] The Army is the only service which comprehensively develops the concept of close and deep operations. Its doctrine says that close operations are

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[25] *FM 100-5*, 6-14, 7-13, 9-4.

[26] David M. Annen, "Joint Interdiction-The Grey Area" (Carlisle Barracks, PA: U.S. Army War College, 1996); Terry New, "Where to Draw the Line Between Air and Land Battle," *Airpower Journal*, Fall, 1996.

[27] *Air Force Manual 1-1.*

[28] *Air Force Manual 1-1;NDP 1*; U.S. Department of the Navy, *Naval Doctrine Publication 5: Naval Planning* (Washington, D.C.: Headquarters Department of the Navy, 1996); U.S. Department of the Navy, *NWP 3-56.1TP: Joint Force Air Component Commander Organization and Processes* (Washington, D.C.: Headquarters Department of the Navy, 1995); U.S. Marine Corps, *FMFM 1: Warfighting* (Washington, D.C.: Headquarters U.S. Marine Corps, 1989); U.S. Marine Corps, *FMFM 1-1: Campaigning* (Washington, D.C.: Headquarters U.S. Marine Corps, 1989).

when forces are "in immediate contact" and includes the corps and division current battles.[29] Deep operations, on the other hand, may help defeat the enemy outright and are activities against an enemy's forces and functions beyond the close battle.[30]

The Army Concept of Deep Battle.[31] Army doctrinal concepts for combat operations are organized in terms of a battlespace framework consisting of three elements: the area of operations, battlespace, and operations in depth.[32] Understanding the Army position of deep battle requires a basic understanding of the framework in which Army commanders view battlespace.

The first element of the battlespace framework is the area of operations (AO). Army doctrine defines an area of operations as: "...a geographical area assigned to an Army commander by a higher commander--an AO has lateral and rear boundaries which usually define it within a larger joint geographical area."[33] A key facet of the area of operations is that it must be appropriate in size and design so that a commander can accomplish his mission and protect his force. The area of operations represents the physical boundaries of a command, but not the commander's limits.

The second element of the battlespace framework is the concept of battlespace. Army doctrine defines battlespace as: "...components determined by the maximum capabilities of a

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[29] *FM 100-5*, 6-4.

[30] *FM 100-5*, 6-4/5.

[31] This section relies upon Kevin M. Woods, "Deep Operations: Twin Sons of Different Mothers" (Newport, RI: U.S. Naval War College, 1997).

[32] *FM 100-5*, 6-2.

[33] *FM 100-5, Operations*, G-0.

unit to acquire and dominate the enemy; includes areas beyond the AO; [and] it varies over time according to how the commander positions his assets."[34] Battlespace replaces the previous doctrinal concepts of area of interest and area of influence with an integrated view of the "area of combat." Battlespace is a physical volume which expands or contracts in relation to the ability to acquire and engage the enemy.[35] The concept of battlespace is key in the Army's linkage among the tactical, operational, and strategic levels of war. The advent of advanced weapon systems, coupled with long range targeting and precision attack, enables the JFLCC to narrow the distinction between tactical operations and those normally considered operational and even strategic. In his critique of the 1993 version of *FM 100-5 Operations*, Major General Holder noted:

> Its [*FM 100-5*] addition of battlespace establishes a logical progression of operational areas from the theater of war to the theater of operations into the tactical realm. This adds consistency to our doctrinal view of physical divisions of the areas of combat. This is important because it stakes out Army interests in a contested area of joint and service doctrine. Without such an explanation, we would abandon a vital dimension of operations to air theorists who are inclined to limit the land offensive to the fight between committed forces and claim everything beyond the range of organic fires to the air commander's responsibility.[36]

Battlespace does not represent a new set of restrictive boundaries. In fact, battlespaces may overlap, especially in rapidly changing battlespace.

The final element of the Army's battlespace framework is operations in depth. Operations in depth is defined as the totality of the JFLCC's operations against the enemy--

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[34] Ibid., G-12.

[35] Ibid., 6-12.

[36] L.D. Holder, "Offensive Tactical Operations," *Military Review*, December, 1993, 51.

composed of deep, close, and rear operations which are usually conducted simultaneously in a manner which appears as one continuous operation against the enemy.[37] The Army places enormous emphasis on depth and simultaneous attacks as key components of maintaining the initiative over an enemy. The application of depth and simultaneous attacks blurs the boundaries among tactics, operations and strategy.[38] It is important to remember that operations in depth includes deep battlespace, but is not synonymous with it.

The purpose of deep battle, when conducted simultaneously with close and rear, "...is to deny the enemy freedom of action and to disrupt or destroy the coherence and tempo of operations."[39] Equally important to the purpose of deep battle is the range of options available to conduct it. Army doctrine identifies the following operations in support of deep battle: interdiction by ground and air maneuvers and fires, either alone or in combination; deep surveillance and target acquisition; and, command, control, and communications countermeasures (C^3CM).[40] On the other hand, joint doctrine also includes interdiction as an element of firepower and is based on its intended effect.[41] Interdiction may constitute a significant element of a JFLCC's operational firepower.

The Army concept of deep battle is central to its warfighting doctrine. The popular impression of an Army concerned about battlespace defined by limited direct and indirect

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[37] *FM 100-5, Operations*, G-6.

[38] U.S. Department of the Army, *U.S. Army Field Manual 100-7, Decisive Force: The Army in Theater Operations* (Washington, D.C.: Department of the Army, 1995) 1-8.

[39] *FM 100-5, Operations*, 7-13.

[40] Ibid.

[41] U.S. Joint Staff, *Joint Pub 1-02, Department of Defense Dictionary of Military and Associated Terms*, (Washington, D.C.: Government Printing Office, 1994) 16.

weapon ranges has dramatically changed over the past ten years. For example, Major General Holder noted that in the 1986 version of *FM 100-5 Operations,* the concept of deep battle was limited with the phrase: "...deep operations supplemented close operations; the tie was direct and unbreakable."[42] However, in the 1993 version of *FM 100-5 Operations*, deep battle's importance was elevated. It states that "[c]ommanders may pursue separate battle objectives by using deep and close combat operations, either of which may be the main effort."[43] This view of the deep battle as a potential main effort is surprisingly in line with Air Force doctrine on interdiction. Although most references to deep battle in Army doctrine presuppose a close fight will occur (the historical norm), the concept that deep battle can achieve an operational objective is now part of that doctrine.

The Air Force Concept of Deep Operations: The Air Force discusses operational fires as "deep operations," or those operational fires beyond the fire support coordination line (FSCL) which include air interdiction, strategic attack, suppression of enemy air defenses, electronic warfare, psychological operations, and offensive counter air missions. Tactical fires include close air support for ground forces in close battlespace which is located before the FSCL.[44] In essence, close battlespace is a warfighting area located before the FSCL and deep battlespace is a warfighting area beyond the FSCL.

Figure 2 below shows typical Air Force missions by battlespace areas. Deep operations from an Air Force viewpoint involves applying force to destroy targets on the far

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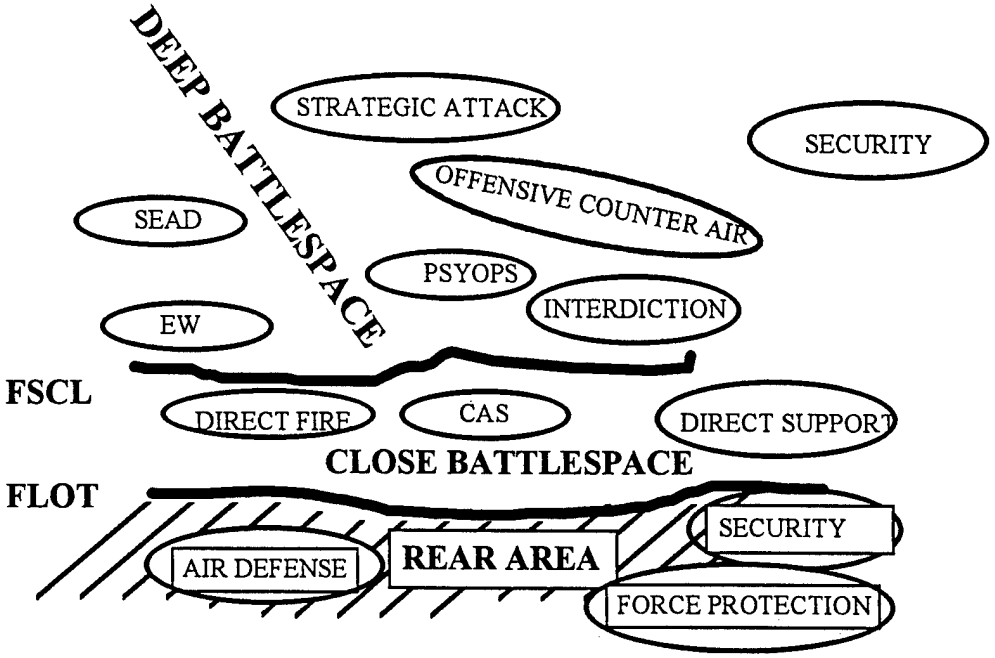
[42] Holder, *Military Review*, 51.

[43] *FM 100-5, Operations*, 7-12.

[44] *Air Force Manual 1-1,* Volume 2, 165-168.

side of the fire support coordination line, such as with interdiction or strategic attack missions. Close operations involve applying force from the forward line of troops to the fire support coordination line, such as with close air support missions. Close and deep operations depend upon the integration of theater air defense in friendly rear areas with airspace control procedures throughout the battlespace. Additionally, air tasking orders for attacking deep targets are used to integrate multiple services, missions, and targets. Air defense, airspace control, and air tasking order functions will be discussed briefly next.

Figure 2 - AIR FORCE PERSPECTIVE OF GENERIC JOINT OPERATIONS AREA: MISSIONS AND BATTLESPACES



First, the JFACC is normally the airspace coordination authority.[45] In this role, the JFACC is the single point of contact for airspace management. This airspace includes safe corridors through the rear area and all airspace from the forward line of troops to the outer

[45] U.S. Joint Staff, *Joint Pub 3-56.1: Command and Control for Joint Air Operations* (Washington, D.C.: Government Printing Office, 1994) II-3/4.

boundary of the area of responsibility. It also includes many different restricted operating zones which allow various missions to occur with minimal coordination. Sequencing the high volume of weapon systems through limited airspace is a high priority to avoid fratricide. These systems include cruise missiles, ATACMS, fixed wing, and rotary aircraft.

Second, the JFACC integrates joint deep attack missions into a deep battlespace plan using the air tasking order. This document is used to assign targets to specific units by weapon systems. It is a daily sequenced plan which integrates airspace, tactical units, weapon systems, and targets. This joint sequential plan is necessary to avoid redundant targeting and to ensure scarce resources are used effectively.

Third, the JFACC is normally the area air defense commander.[46] In this role, the JFACC defends the rear area from ballistic missile and other airborne attacks. Using Patriot, Hawk, Aegis, and other surface-to-air missile and artillery systems, rear area air defense is integrated with the airspace control plan. This integration helps prevent engaging friendly aircraft returning to their launch bases.

Boundaries

The boundaries which separate deep and close battlespaces are normally well established within a theater of war, but are not grounded clearly in joint doctrine. Joint fires which cross intra-theater boundaries require careful deconfliction to prevent fratricide and avoid duplication of effort, while supporting operational momentum, maintaining the initiative, and conducting maneuvers. These boundaries are discussed next.

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[46] *Joint Pub 3-56.1*, II-3/4.

Many research papers discussing deep battlespace focus on the boundary between the JFLCC and the JFACC. The JFLCC's interest in the JFACC's area of operations is legitimate because his future ground scheme of maneuver depends upon current interdiction efforts by the JFACC. The JFACC has a similar interest in the JFLCC's area of operations because attacking targets beyond the fire support coordination line occurs in the JFLCC's battlespace to the edge of his forward boundary. The method that a joint force commander (JFC) uses to create these boundaries varies among commanders. *Joint Pubs 0-2, 3-0* and *5-00.2* all provide guidance. For example, *Joint Pub 0-2* discusses supported commander responsibilities and *Joint Pub 3-0* discusses establishing supported and supporting relationships among components.[47] In general, the JFLCC's and JFACC's boundaries are normally contained within their respective area of operations, when designated.[48] However, each commander has important interdependent actions in the other's area of operations.[49] For example, the Army is dependent on airpower for freedom of maneuver on the ground. The Air Force and Navy are often dependent on the Army to physically seize valid military objectives with a ground force. Airpower can destroy or isolate physical objectives, but it cannot physically seize or occupy a decisive point. Additionally, current doctrine has the JFLCC dependent upon the JFACC to shape deep battlespace with interdiction missions despite the Army's limited organic ability to shape this battlespace with ATACMS and

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[47] *Joint Pub 3-0,* II-9.

[48] Neither the JFACC nor the JFLCC are required to have designated areas of operation or be classified as supported commanders; nevertheless, as will be shown in the findings, some geographic combatant commands assign component commanders their own areas of operation.

[49] The Marine Corps has a similar requirement, but it has organic aircraft to meet direct support needs. The Marines will be discussed later.

Apache helicopters. Furthermore, the Army controls assets flying close air support missions short of the fire support coordination line. This reliance upon actions in other areas of operations leads to an increased interest in controlling cross-boundary joint fires.

Targeting

Targeting methodology is another popular topic among deep battlespace researchers. Most papers rely upon Warden's model or the Army's "decide-detect-deliver" methodology to make targeting decisions.[50] The better papers advocate a holistic approach to targeting, rather than the more prevalent incremental approach.[51] However, a critique of the target emphasis approach for synchronizing deep battlespace activities is that it omits many non-lethal fires such as: deception; surveillance and target acquisition; electronic warfare; command and control countermeasures; psychological operations; and more. All lethal and non-lethal activities are important deep battlespace concerns.[52]

Fire Support Coordination Line

Another common theme running throughout recent research papers is the idea that the fire support coordination line is anachronistic. That is, many authors feel that the fire support

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[50] John A. Warden, III, "The Enemy As A System," *Airpower Journal*, Spring 1995, 40-55; Edward J. Francis. "Is Current Fire Support Doctrine for the Deep Battle Effective in the Post Desert Storm Environment?" (Monterey, CA: U.S. Naval Postgraduate School, 1992); *FM 100-7*, G-8.

[51] Steven M. Rinaldi, "Beyond the Industrial Web: Economic Synergies and Targeting Methodologies" (Maxwell AFB, AL: Air University Press, 1995).

[52] Robert F. Kluba, "De-mystifying Joint Targeting," *Field Artillery*, January, 1996, 4-8; Robert M. Hill, "Future Watch: Target Acquisition and Precision Attack Systems," *Field Artillery*, January 1996, 18-22.

coordination line is not a relevant concept in today's high technology warfare.[53] In short, these authors think the fire support coordination line is irrelevant in current battles because each service possesses the organic ability to attack deep targets. The fire support coordination line was originally designed to coordinate close and deep attacks between commanders who did not have the means to fight in other areas of operation. Alternatively, other methods to increase a commander's control of scarce assets, such as with air tasking orders or fire support coordination measures (such as no fire areas, restricted fire areas, and free fire areas) could be used.

The fire support coordination line's role in delineating the boundaries between air and ground commanders within different battlespaces is examined in much of the literature.[54] For example, some authors rely upon Van Creveld's *Command in War* as a model to provide structure within the uncertain nature of warfare.[55] Many authors use Desert Storm lessons learned to highlight fire support coordination line problems. Jauron proposed three models which evaluate fire support coordination line relationships between air and ground commanders:

1. Desert Storm Model: In the Desert Storm model, the fire support coordination line is a de facto boundary used to separate the areas of operations between JFLCC and JFACC.

2. U.S. Central Command/Combined Forces Command model: This model uses the JFLCC's forward boundary as a distinguishing junction between the JFLCC and the JFACC. In U.S. Central Command this forward boundary is called the "reconnaissance interdiction planning line" (RIPL). In the Combined Forces Command it is called the

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[53] Michael J. McMahon, "The FSCL–A Concept Behind Its Times?" (Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1995).

[54] Lester C. Jauron, "The FSCL: Should It Delineate Area Responsibility Between Air and Ground Commanders" (Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1993). In joint doctrine, the fires support coordination line is not a boundary, it is a fire support coordination measure. *Joint Pub 3-0*, III-34.

[55] Martin L. Van Creveld, *Command in War* (Cambridge, MA: Harvard University Press, 1985).

"deep battle synchronization line" (DBSL). Additionally, air-to-ground sorties flown beyond the fire support coordination line but short of the forward boundary are considered battlespace air interdiction sorties. In the Combined Forces Command these sorties are called "extra interdiction" (XINT).

3. Flexible Approach: Establish a boundary such as a long range interdiction line. Use this line to determine the boundary between close air support (CAS) and interdiction sorties. CAS missions are then divided into close, medium, or deep CAS missions depending on how far away from the reference line they strike.[56]

The three models are useful ways to evaluate different methods to segment battlespace. Regardless of the method used, these models are conventional ways to view deep battlespace because they each rely upon establishing a boundary to separate JFLCC and JFACC operations. The different models describe different boundaries to use as the separation between components. Alternatives such as battlespace without boundaries using Owens' system of systems model are not yet evaluated in the military operations literature.[57]

The Marine Air-Ground Task Force (MAGTF) in Deep Battlespace.[58]

Joint doctrine provides little guidance on how to handle the cross-boundary problem and, in some cases, actually provides protected status to some services. For example, *Joint Pub 0-2: Unified Action Armed Forces (UNAAF)* affords the MAGTF "protected status" from supported commanders hoping to use MAGTF air assets.[59] During an amphibious operation, the integrated use of Marine air with Marine ground forces is mandated because of

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[56] Jauron, 1993.

[57] William A. Owens, "The Emerging System of Systems," *U.S. Naval Institute Proceedings*, May 1995, 36-39.

[58] This subsection relies on Robert D'Amico, "Joint Fires Coordination: Service Specialties and Boundary Problems" (Newport, RI: U.S. Naval War College, 1997).

[59] U.S. Joint Staff, *Joint Pub 0-2: Unified Action Armed Forces (UNAAF)* (Washington, D.C.: Government Printing Office, 1995) IV-4.

the critical vulnerability of an amphibious objective area (AOA). However, once the amphibious operation is completed and the AOA is dissolved, then synchronized joint fires in deep battlespace become problematic. This occurs because integrated Marine operations are designed to support campaign objectives. These operations may directly support campaign objectives; however, redundant and conflicting target attacks can easily occur such as interdicting second operational echelon forces or conducting offensive counter air. The *UNAAF* states that MAGTF excess sorties will be provided to the JFC. However, sorties for counter air, "long-range" interdiction and reconnaissance are not "excess" sorties. Rather, the *UNAAF* explicitly states that these sorties are not considered excess because they "provide a distinct contribution to the overall joint force effort."[60]

Once an AOA is dissolved and a MAGTF uses organic air to shape its deep operational maneuvers, then joint fires among services become nearly impossible to synchronize. Deconflicting MAGTF offensive counter air, interdiction and reconnaissance missions with the JFACC becomes top priority to prevent fratricide. In this case, the problem is that concerns for joint service deconfliction override concerns for synchronized actions, when clearly there is an opportunity for greater economy of force and unity of effort. A simple solution to deconflict forces is to provide the MAGTF with its own boundary (area of operations) which protrudes well beyond the fire support coordination line.[61] This simple solution allows the MAGTF freedom of maneuver, but at a loss of synchronized actions throughout deep battlespace.

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[60] *Joint Pub 0-2*, IV-4/5.

[61] *Joint Put 3-0*, III-33.

Research on deep battlespace has been presented including definitions, service viewpoints, and doctrinal issues. Now, the discussion shifts to synchronization.

Synchronization

According to *Joint Pub 1-02*, synchronization is: "... the arrangement of military actions in time, space, and purpose to produce maximum relative combat power at a decisive place and time."[62] According to *FM 100-5*, synchronization is defined as "...the ability to focus resources and activities in time and space ...."[63] Both *Joint Pub 1-02* and *FM 100-5* definitions are focused on tactical level planning and execution. However, DBS has operational level implications which are likely more complex than at the tactical level. For example, DBS involves the efforts of more than one service, various platforms, different missions, and can impact multiple operational objectives. The distinction between synchronization as a tactical level issue and DBS as an operational level issue has not been accomplished in the joint military literature.

Air Force Manual 1-1 has several definitions of synchronization. For example, synchronization is "...[p]utting all the available forces together at the correct place and time to achieve victory."[64] It goes on to state:

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[62] *Joint Pub 1-02*, 371.

[63] *FM 100-5*, G-8.

[64] *Air Force Manual 1-1*, 305.

> It [synchronization] requires understanding the complementary and reinforcing effects of combining all available combat means, the ways in which friendly and enemy capabilities interact, mastery of space-time relationships, and unambiguous unity of purpose. The goal of synchronization is to use every asset where, when, and in the manner in which it will contribute most to superiority at the point of decision.[65]

The Air Force definition of synchronization is focused at the operational level of warfare. This paper uses the term synchronization to describe integrating deep battlespace activities which ensures unity of effort at the operational level.

Army synchronization of joint fires or deep supporting fires normally involve integration with close battlespace maneuvers. This tactical level application of synchronized fires with maneuver is frequently evaluated at the National Training Center. Even at the tactical level, synchronizing fires and maneuver within the JFLCC's area of operations has been problematic.[66]

Synchronizing dominant fires in deep battlespace is an important element of operational art. For example, for a series major operations which involve interdiction, JTF deep attack weapon systems could begin the campaign with joint suppression of enemy air defenses and command and control warfare missions; then, aircraft could conduct cluster bomb attacks to protect Apache battle positions, disrupt enemy formations, and eliminate the surface-to-air missile and anti-aircraft artillery threats; finally, Apache, A-10, F-16C, F-15E and F/A-18 aircraft could destroy armored and mechanized first and second operational

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[65] *Air Force Manual 1-1*, 304/5.

[66] Frederick M. Franks, "NTC Trip Report, 8-10 Sep 1992," (Memo for TRADOC Staff, Fort Monroe, VA, 14 September 1992) 1.

echelon forces. From this example, one can see that synchronizing operational fires is an increasingly important aspect of operational art.

To some, synchronization is both a process and an effect. As a process, it can be the arrangement of military actions regarding time, space and purpose (an operational level issue). As an effect, it is applying maximum relative combat power at a decisive place and time (a tactical level issue). In an emphasis of the linkage between process and effect, synchronization is sometimes viewed as a disguise for centralized control. This line of thinking says that decentralization and synchronization are mutually exclusive ideas. To achieve the desired products of synchronization, commanders must limit subordinates' initiative and provide centralized planning for battlespace actions. The aim of synchronized effort lies in intended effect which is articulated through the commander's intent. Visualization of the end state becomes an important prerequisite before synchronizing any activity.[67]

> Synchronization as a process...transcends the common notion of matrices, detailed rehearsals, written orders, or other integrating mechanisms. It is an exercise in analytical creativity for the commander, and it draws upon his ability to think in depth, comprehend time-space relationships, and appreciate the interaction between opposing forces. It demands a sense of unity and a power of judgment, raised to a marvelous pitch of vision.[68]

To some strategists, synchronization is synonymous with coordination. To others, synchronization is the same as initiative. However, synchronization is more than coordination because it has aspects related to both process and effect. "Process" involves the mechanisms

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[67] Stephen J. Kirin, "Synchronization" *Naval War College Review*, Autumn 1996, 7-22.

[68] Ibid., 9.

within JTFs or combatant commands used to integrate deep battlespace activities. It involves the operational art of the commander, as well as weapon, intelligence, and command and control systems available. "Effect" is the impact which integrated deep battlespace actions have on the enemy with the goal of a decisive attack at the right time and place. Coordination is concerned only with process aspects; in short, a necessary (but not sufficient) condition for synchronization.[69]

Many authors have written about the evolution of deep battlespace concepts.[70] Defense related articles and other literature sources discuss the lack of coordination and sequencing necessary to effectively execute deep activities.[71] None of these articles, however, address the entire synchronization problem. For example, articles on command of the deep battlespace fail to address how a commander synchronizes an all-service deep battlespace effort. Additionally, these discussions are limited to Army and Air Force actions, disregarding the capabilities of special operations forces, Navy and Marine ground attack aircraft for example.[72] Moreover, these discussions are framed around specific weapon systems and analyze the integration of weapon systems into deep operations; however, isolating any one weapon system for analysis risks missing the totality of deep battlespace activities.[73] This

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[69] Ibid., 17.

[70] For example, see Kevin S. Woods, "The Operational Deep Ground Attack: Potential and Implications" (Newport, RI: U.S. Naval War College, 1996).

[71] Joseph P. Monko, "Doctrinal Shortfall--Who Will Command the Deep Battle" (Carlisle Barracks, PA: U.S. Army War College, 1988); Kevin McEligot, "Beyond the Fire Support Coordination Line--Controlling Chaos in the Deep Battlefield" (Newport, RI: U.S. Naval War College, 1995).

[72] James S. Roach, "*Joint Special Operations Targeting an Alternative Scheme*" (Carlisle Barracks, PA: U.S. Army War College, 1989).

[73] Edward J. Horres, "A Deep Strike Role for TOMAHAWK in Europe: the Next Logical Step for the Maritime Strategy" (Newport, RI: U.S. Naval War College, 1989); Roy A. Griggs, "Can the Navy's TOMAHAWK Land Attack Missile be Used in Support of the Army's Airland Battle" (Newport, RI: U.S. Naval War College, 1978); Randall L. Rigby, "ATACMS 1B," *Army*, December 1996, 23-24; Jay Hilliard, "ATACMS Block II: Killing Armored Targets Deep," *Field Artillery*, January 1996, 22-25.

shows that current literature evaluates deep battlespace and synchronization issues in a fragmented way.

Deep Battlespace Synchronization

The essence of DBS is to integrate actions for synergistic outcomes; however, implementing such an ideal goal is difficult. The integration could include sequenced actions such as cooperation of aviation with airborne, mechanized, and motorized units, and for the whole force to operate independently of the main battle area.[74] This integration requires a shifting emphasis from deep operations being considered a tactical level warfare model and consider it more of an operational level warfare model--such as the Soviet's operational maneuver group.[75]

Several papers discuss the evolution of the air-land battle concept which integrates close air support with battlefield air interdiction. The evolution of U.S. battlefield air interdiction and its connection with earlier Soviet operational maneuver groups is often discussed in the literature.[76] These same papers tend to display a frustration over the ground commander's perceived lack of support for interdiction targets which Army units want attacked in deep battlespace. Fairly new procedures which are not grounded in doctrine, such

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[74] Darrell E. Crawford, "Deep Operations in Airland Battle Doctrine: The Employment of U.S. Ground Forces in Deep Operational Maneuvers" (Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1989).

[75] Ibid.

[76] For a good discussion of Soviet deep operations theory see Crawford, 1989.

as "push CAS," "CAS kill boxes," and "Killer Scout" are also discussed.[77] The connection between battlefield air interdiction and Soviet literature is important for this paper because it shows earlier thinking about the synchronized lethal actions between close and deep battlespaces and provides an historical backdrop from which to view today's problem. For example, Soviet deep operations tenets are: simultaneity, interchangeability, tempo, and offensive actions; whereas U.S. air-land battle tenets include: agility, initiative, depth, and synchronization.[78]

Hallion provides an historical track record on CAS and interdiction results. In short, he says that "close interdiction" has been more effective than long range interdiction in history because:

1. Deep interdiction is hard to synchronize
2. Deep interdiction allows the enemy time to recover and resupply
3. Deep interdiction is subject to political interference[79]

There are many activities in deep battlespace requiring synchronization to ensure unity of effort and achievement of JFC objectives with the fewest friendly casualties and most cost-effective solutions. For example, special operations forces (SOF) units conduct various missions in deep battlespace. These activities must be synchronized or preventing fratricide becomes the overriding goal. Direct action and special reconnaissance missions are two

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[77] Robert D. Grymes, "Air Support for the Divisions Deep Battle: Doctrinal Disconnect" (Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1995); Francis, 1992, 20.

[78] Charles K. Pickar, "Tactical Deep Battle: The Missing Link" (Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1991).

[79] Richard P. Hallion, "Battlefield Air Support: A Retrospective Assessment," *Air Power Journal*, IV(1), Spring 1990, 8-28.

important deep battlespace actions conducted by SOF which require joint service synchronized support.[80] While conducting special reconnaissance missions to gather information on JFC areas of interest, other joint force units must capitalize on this information to attack time-critical, fleeting targets--like SCUD launchers, sea mine storage sites, or troop assembly areas. Support for sanitizing ingress and egress corridors, and insertion vehicles is required. Joint fires for SOF teams in trouble, as well as for resupply, also must be conducted. Moreover, command and control systems must be sufficiently reactive enough to reallocate missions to attack fleeting targets.

The joint doctrine discussion about SOF integration is described in terms of a joint special operations area. Like the Marines' amphibious objective area, this special operations area of operations allows commanders autonomy in executing their missions; however, there is no mission integration with other services to ensure unity of effort.[81]

SOF also can be used for human intelligence collection in deep operations provided that communications and bureaucratic structures are controlled tightly.[82] Deep battlespace activities for SOF include interdiction, suppression of enemy air defenses, strategic attacks against soft targets, deep tactical reconnaissance, and terminal guidance for smart bombing.[83]

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[80] Stephen P. Howard, "Special Operations Forces and UAVs: Sooner or Later?" (Maxwell AFB, AL: Air University Press, 1996).

[81] *Joint Pub 3-0*, II-18; U.S. Joint Staff, *Joint Pub 3-05: Doctrine for Joint Special Operations* (Washington, D.C.: Government Printing Office, 1992) IV-3 - IV-9.

[82] Henry Booth, "Thoughts on SOF Deployment for Deep Battle HUMINT Operations" (Carlisle Barracks, PA: U.S. Army War College, 1984).

[83] Raymond R. Drummond, "Light Infantry: A Tactical Deep Battle Asset for Central Europe" (Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1985).

These missions help defeat the enemy because deep battlespace attacks can destroy enemy warfighting capability.[84]

DBS involves a geographic combatant command's planning-decision-execution cycle. Some authors wrote about this cycle. Unfortunately, none of these sources discuss the mechanics of how to fight the deep battle. Discussions on deep battlespace command and control intentionally sidestepped the key issues of planning, apportionment, economy of force, unity of effort, and execution--in other words, 'the how to' questions. Instead, the articles describe how different pieces of the cycle such as air tasking order development, targeting methodology, or intelligence input into the cycle.

Planning and unity of effort are key points in DBS. Currently, no formal method exists for planning and executing the deep battle.[85] Some elements of deep battlespace planning and execution exist, such as the joint targeting coordination board, the joint fires element, or the area air defense commander; however, all functional components can project combat power into deep battlespace. As a result, deep operations such as employing special operations and conducting cruise missile strike operations are often planned as independent contingency operations, instead of apportioned and synchronized actions integrated with other deep battlespace actions. A good commentary on this integrative shortfall was archived during Exercise Ulchi Focus Lens 94 which highlighted some of the ingredients of deep battlespace planning, such as: air tasking order impacts; fire support coordination line and deep battle synchronization line controlling authority; contingency theater automated planning system

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[84] Carl Von Clausewitz, *On War*, Howard, Michael, and Peter Paret, eds. and trans. (Princeton, NJ: Princeton University Press, 1974).

[85] *Joint Pub 3-0,* III-34.

usage; command, control, communication, computer, information (C^4I) integration; and, close air support control, logistics, and joint doctrine.[86]

In this paper, the term deep battlespace will be used to refer to the battlespace from the JFLCC's forward boundary to the edge of a CINC's area of responsibility or a JFC's outer boundary of a theater of war. DBS refers to the synchronization of joint lethal and non-lethal activities in this area.

Unity Of Effort and Control

According to *Joint Pub 3-0*, unity of effort is defined as "...common action throughout the joint force in pursuit of common objectives."[87] This joint document describes how unity of command may not occur within many combat situations. Rather, "...JFCs may be required to build consensus to achieve unity of effort."[88] Management, overall direction, or some other non-command relationship such as leading an effort of diverse activities may be required to achieve U.S. policy ends.

Unity of effort is closely associated with the term "unified action" in joint pubs. Unified action generally refers to a larger U.S. effort which requires both military and non-military operations to be complementary. "The concept of unified action ... highlights the synchronized application of all of the instruments of national and multinational power and includes the actions of nonmilitary organizations as well as military forces."[89]

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[86] JULLS Number 10555-44442.

[87] *Joint Pub 3-0*, I-1.

[88] *Joint Pub 3-0*, I-6.

[89] *Joint Pub 3-0*, II-3.

Unity of effort and unity of command discussions appear regularly in deep battlespace research papers. One author describes unity of effort as being synonymous with "unity of control."[90] This comparison between effort and control is an important connection with the purpose of synchronizing deep battlespace activities. The purpose of unity of effort or unity of control is for deconfliction and force application.[91] Some papers recommend vaguely an organizational mechanism which controls deep battlespace activities, rather than coordinates them.[92]

In a prescription for what is needed to integrate air, and ground actions, the key to successful air-land operations is thought to be the collocation of coequal and interdependent air and land forces with a shared headquarters for joint planning and execution at the operational level.[93] There is only one campaign, it is the theater CINC's. The CINC must synchronize actions of subordinate commanders for unity of effort. Air superiority is still required and remains a pre-condition for successful air-land operations. A prominent airpower scholar said that "...air superiority has not yet brought a country to its knees. Therefore, the proposition remains that air superiority is a necessary but insufficient factor in victory."[94] However, there is no air-only campaign because ground control is historically required to occupy an enemy's space. There is no land-only campaign because air superiority

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[90] McEligot, 14.

[91] Ibid.

[92] Francis, 109.

[93] Allen W. Batschelet, "A Joint Issue: The Challenge of Synchronizing Firepower at the Operational Level: A Monograph" (Fort Leavenworth, KS: U.S. Command and General Staff College, 1995).

[94] Phillip S. Meilinger, "Ten Propositions Regarding Airpower" *Airpower Journal*, Spring 1996, 54.

is a required condition for friendly ground freedom of maneuver.[95] Another author says that unity of command is a prerequisite for unity of effort. This argument, in short, says that one commander must control a given area of concern to ensure that task efforts are truly unified toward a common objective.[96] The problem with unity of command being considered a necessary condition for unity of effort is that it denies the commander any legitimate influence over integrating inter- and non-governmental organizational activities.

Furthermore, the problem with an air commander's control of Army and Navy deep fire assets is highlighted in another study.[97] Unity of effort throughout the depth of the JFLCC's area of operations is vital to the success of ground operations. The central problem is:

> ...that many opportunities for deep attack, such as moving armored formations, will be fleeting in nature. If several planning cells are involved, they could end up working at cross-purposes to each other.[98]

The proposed solution, although quixotic "...is to have one integrated and seamless battlefield with the separate parts interrelated over time" with one person who coordinates and controls joint fires throughout the deep battlespace.[99]

Unity of effort may be the linchpin which supports deep battlespace. The objective and open-minded commander recognizes when synchronizing deep battlespace activities might

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[95] Glenn Harned, "The Spirit of Au Gay: Putting the Air Back into Airland Operations" (Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1985).

[96] Daniel P. Leaf, *Unity of Command and Interdiction* (Maxwell AFB, AL: Air University Press, 1994).

[97] Mark J. Eshelman, "Air Commander Control of Army Deep Fire Assets" (Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1993).

[98] Eshelman, 1993, 12.

[99] Ibid.

act as a force multiplier and coordinate forces toward a commonly recognized objective.[100] The problem is that deep battle execution represents a significant commitment of assets and logistics capability. The JFC specifies the subordinate commander who will control deep battlespace; however, significant C^4I capability is required if joint service assets will be employed with any synchronization. Eshelman proposes that the ground commander control air interdiction in the deep battlespace but fails to address emerging C^4I requirements.[101] The Air Force and joint staff advocate that the JFACC control these missions.[102] An additional challenge to unity of effort is the presence of coalition forces which adds another dimension to the coordination problem; especially if the theater of war extends over several international borders.[103]

Control Methods

Synchronization as an approach to deep battlespace management allows commanders to strike a balance between the centralized control required for synchronized activities and the initiative demanded by the uncertainty of battle. In short, decentralization risks some loss of synchronization and unity of effort.

> The essential question, then, is not whether synchronization implies a loss of initiative but, rather, how the JFC can achieve the balance between the

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[100] *Joint Pub 3-0*, A-1.

[101] Eshelman, 1992.

[102] U.S. Department of the Air Force, *JFACC Primer*, 2nd ed. (Washington, D.C.: Headquarters Department of the Air Force, 1994); *Joint Pub 3-56.1*, II-3.

[103] Carol A. Mershon, "The Costs of Coalitions: Coalition Theories and Italian Governments," *American Political Science Review*, September, 1996, 534-554; Patrick Bolton and Gerard Roland, "Distributional Conflicts, Factor Mobility, and Political Integration," *The American Economic Review*, May 1996, 99-104; U.S. Joint Staff, *Joint Pub 5-0 Doctrine for Planning Joint Operations* (Washington, D.C.: Government Printing Office, 1995).

control necessary for synchronization and the initiative demanded by the uncertainties of battle. [104]

Debates between centralized and decentralized control abound in various literature sources and are pan-disciplinary. Issues involving these two ideas have been examined for many decades. Willoughby wrote about government theory pleading for decentralization within the federal government structure.[105] Waldo discussed issues involving these ideas in his seminal work referring to centralization as "centripetal" and decentralization as "centrifugal."[106] Appleby discussed the connection between them in a hierarchical sense with centralization being required before decentralization could occur.[107] March and Simon also made strong references to centralization and decentralization within hierarchical organizations.[108] Barnard discussed them while referencing organization structures in uncertain times.[109]

Centralization means that all important decisions and implementations are concentrated at the top level of an organization. It is a force which pulls all organizational elements *toward* the center. Decentralization is a force that pushes organizational elements *away* from the center. Centralization has both advantages and disadvantages. Its strengths lie in control, accountability, and consistency; however, it lacks flexibility and adaptability.

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[104] Kirin, 1996, 19.

[105] W.F. Willoughby, "The National Government As A Holding Company," cited in *The Administrative State,* Dwight Waldo (New York, NY: The Ronald Press Company, 1948) 145.

[106] Dwight Waldo, *The Administrative State* (New York, NY: The Ronald Press Company, 1948).

[107] Paul Appleby, *Big Democracy* (New York: Knopf, 1945).

[108] James G. March and Herbert A. Simon, *Organizations* (New York, NY: Wiley, 1958).

[109] C.I. Barnard, *The Functions of the Executive* (Cambridge, MA: Harvard University Press, 1938).

Centralization makes sense within simple organizations in stable environments. Decentralization, on the other hand, allows problems and opportunities to be acted upon at lower organizational levels. However, it is hard to hold people accountable. Decentralization is more appropriate for complex organizations operating within changing and uncertain environments.[110] Osborne and Gaebler offer four advantages of decentralization:

1. More flexible and responsive to environmental change
2. More effective than centralized organizations
3. More innovative than centralized organizations
4. Higher morale, commitment and productivity than centralized organizations[111]

Decentralizing decision-making and organizational power is appropriate for organizations which deal in complex, dynamic environments. Within these fluid organizations, problems and opportunities must be acted upon quickly to remain effective.[112] Additionally, centralized control is not as important in an information rich environment because communication is so rapid.[113]

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[110] George J. Gordon, *Public Administration in America*, 5th ed. (New York, NY: St. Martin's Press, 1992).

[111] David Osborne and Ted Gaebler, *Reinventing Government: How the Entrepreneurial Spirit is Transforming the Public Sector, from Schoolhouse to Statehouse, City Hall to the Pentagon* (Reading, MA: Addison-Wesley, 1992) 252-254.

[112] Allen W. Imershein, Larry Polivka, Sharon Gordon-Girvin, et al. "Service Networks in Florida: Administrative Decentralization and Its Effects on Service Delivery," *Public Administration Review*, March/April 1986, 161-169.

[113] Osborne and Gaebler, 1992.

Conclusion

In the current literature, authors have approached DBS in a fragmented way. There is no comprehensive analysis which describes how a commander should balance organizational control and initiative to produce synchronized activities during the uncertainty of combat. Much of the literature is focused at the tactical level, discussing the integration of fires and maneuver. The literature discussing operational level applications of deep battlespace is focused on specific weapon systems, service-specific missions, or doctrinal issues. A central theme running throughout the literature is the trade-off between centralized control of deep battlespace planning and decentralized execution to allow adaptability and flexibility.

CHAPTER 3

PROBLEM STATEMENT AND ANALYTICAL FRAMEWORK

There are many factors which militate against successful DBS. These forces include parochial service interests with inter-service rhetoric about individual roles and missions. Other factors include the impact of new technologies which allow all services to independently attack targets in deep battlespace. This independent ability to attack targets throughout the depth of the battlespace requires control and integration into the campaign plan. From an airpower perspective, during the decentralized execution of battle, this pervasive ability to attack deep targets increases fratricide potential and decreases unity of effort. From an Army perspective, deep battle can actually decrease fratricide potential by attacking enemy targets in isolation from friendly ground forces. Furthermore, the problem is difficult to address during peacetime or during minor conflicts because battlespace coordination and integrated activities are not paramount requirements.

A Combatant Command's Organizational Environment is Uncertain and Changing

The factors of individual service viewpoint, technological development, and peacetime orientation are included in a CINC's organizational environment. Various factors exist outside of a CINC's organizational command boundary which can potentially influence it. These factors are part of the external environment. The factors which impact a geographic combatant command's external environment are discussed next and summarized in Table 1.

Table 1: External Environmental Factors Which Influence Organizational Responses[114]
Factors
Socio-Cultural
International
Industrial
Financial Resources
Economic Conditions
Human Resources
Political Agendas
Technological Change

First, the *socio-cultural factor* includes demographic characteristics of the U.S. population and the value system within society. Demographic characteristics include population age, income and work force distribution, crime and recidivism rates, education levels, and more. Population characteristics have significant influences on service recruitment. The services are chartered to organize, train, and equip military forces. Organizing, training, and equipping these forces must match recruit demographic characteristics such as education levels. Additionally, socio-cultural norms make DoD more sensitive to societal issues. For example, the impact of single parent families and married military members influences the services by forcing them to increase spending on military family housing, child care, and non-combatant evacuation planning. Furthermore, the values within society also affect a CINC's warfighting effort because within this system, for example, the will of the people to support military actions and the creation of politically acceptable end states have strong influences.

Second, the *international factor* includes the influences of coalitions, alliances, and other treaties upon a CINC's activities. Many military actions are combined with other

[114] Adapted from Richard L. Daft, *Organization Theory and Design*, 2nd ed. (New York, NY: West Publishing Company, 1989) 46.

international military forces. Command and control, weapon systems, and rules of engagement criteria are samples of influential issues for a geographic combatant command. International factors also include competition for arms acquisitions from foreign countries. Additional influences involve international customs, and rules and regulations which force a CINC to adapt in various ways.

Third, the *industrial factor* within organizational theory involves competition for work within the same business segment.[115] In the DoD's "business," competition for missions and resources occurs among the services. The defense industry is comprised of both military services and private-sector organizations. Competition for maintenance and other activities which the services consider for privatization affects the defense industry. Industrial factors all strongly influence a geographic combatant command during inter-service competition, and with weapon systems availability and reliability.

Fourth, *financial factors* act as constraints on a CINC's actions. Congress controls the budget allocation and services provide funding to geographic combatant commands. Additionally, weapon systems and other assets used by CINCs in today's battles are strongly influenced by budget decisions which occurred in the past. In the same way, today's budget decisions will impact future warfighting activities as future weapon systems and other assets are shaped by the external financial involvement of Congress and other organizations.[116]

Fifth, *economic factors* such as recessions, unemployment levels, and high inflation and interest rates all eventually impact geographic combatant commands. Both budget

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[115] Jeffrey Pfeffer and Gerald R. Salancik, *The External Control of Organizations: A Resource Dependent Perspective* (New York: Harper & Row, 1978), 138.

[116] James R. Locher, III, "Taking Stock of Goldwater-Nichols," *Joint Force Quarterly*, Autumn 1996, 14; John P. White, "Defense Organization Today," *Joint Force Quarterly*, Autumn 1996, 21.

allocations and service recruitment are influenced by the perception of economic well-being in the U.S. Various government spending patterns can affect interest and inflation rates. In some cases, solutions to economic problems impact DoD in the form of manning, funding and mission issues. For example, during the economic depression of the 1930s, government spending on military goods and services was accelerated to bolster the weak U.S. economy. Much of those goods and services eventually were incorporated into the hands of warfighters.[117]

Sixth, *human resource factors* also influence geographic combatant commands. The availability of qualified recruits is important. As the baby boomer generation ages, replacing military personnel in the future may become increasingly more difficult because of the declining U.S. population. The DoD currently requires a pool of trained and qualified personnel to provide for U.S. national defense. If sufficient troop strengths cannot be organically recruited, then troops for hire or unmanned warfare assets may be used more frequently.[118]

Seventh, *political factors* strongly influence geographic combatant commands. For example, the political party in power and its support level for DoD programs influences a CINC's budget allocation, and possibly, the amount of controlling rules and regulations. Powerful congressional committees, special interest groups, and other political action committees can influence lawmakers in numerous ways which ultimately impact CINCs and

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[117] Gavin Kennedy, *The Economics of Defense* (Totowa, NJ: Rowan Press, 1975) 37.

[118] Martin Binkin, *Military Technology and Defense Manpower*, (Washington, D.C.: The Brookings Institute, 1986) 86, 114; Mark J. Eitelberg and Steven L. Mehay, "The Shape of Things to Come: Trends and Projections Affecting Military Recruiting and Manpower in the 21st Century" (Monterey, CA: U.S. Naval Postgraduate School, September 1992) 3.

DoD. The military conducts operations to reach policy makers' desired end states. These end states are political objectives.[119] Additionally, competition among services for roles and missions, as well as resources, coveted leadership positions, and other key billets occurs within a political context.

Finally, *technological factors* have wide-ranging implications on geographic combatant commands. New materials, new weapon systems, "silver bullet" technology, and more, all influence a CINC's action. Incorporating the advancements in unmanned aerial vehicles, command and control, precision engagement capabilities, and other areas have a direct impact. Incorporating these new technologies into a warfighting organization is an important task which must be accomplished to exploit the opportunities they represent. For the CINCs, technological progress is often viewed as an opportunity because the U.S. is the leader within the world-wide defense industry; however, if that trend changes and a new peer competitor emerges, then new technology will be viewed rapidly as a threat (as much of the world probably views U.S. technological progress today).[120]

External environmental factors directly and indirectly influence geographic combatant commands. These external factors eventually impact DBS when the forces or weapon systems are provided to CINCs. Although CINCs cannot directly influence or control these external factors, they certainly can exploit opportunities presented by them--such as increasing support for unmanned weapon systems. Alternatively, CINCs can adapt their OPLANs to compensate for these factors when they impact adversely the warfighting effort. Deep

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[119] Richmond M. Lloyd, "Strategy and Force Planning Framework" in *Strategy and Force Planning*, 2nd ed. (Newport, RI: U.S. Naval War College, 1997) 1-15.

[120] Andrew F. Krepinevich, "Cavalry to Computer: The Pattern of Military Revolutions" in *Strategy and Force Planning*, 2nd ed. (Newport, RI: U.S. Naval War College, 1997) 438-442.

battlespace synchronization is the integration of joint service actions beyond the JFLCC's forward boundary. These actions are dependent upon the commander's intent, his campaign objectives, and the "means" available to warfighters. These means include weapon systems, coalition partners, a politically accepted theater of war, financial support, and more. The amount of change and interaction among the factors contribute to the degree of uncertainty CINCs face when predicting future responses to contingencies.

Environmental Uncertainty and Change

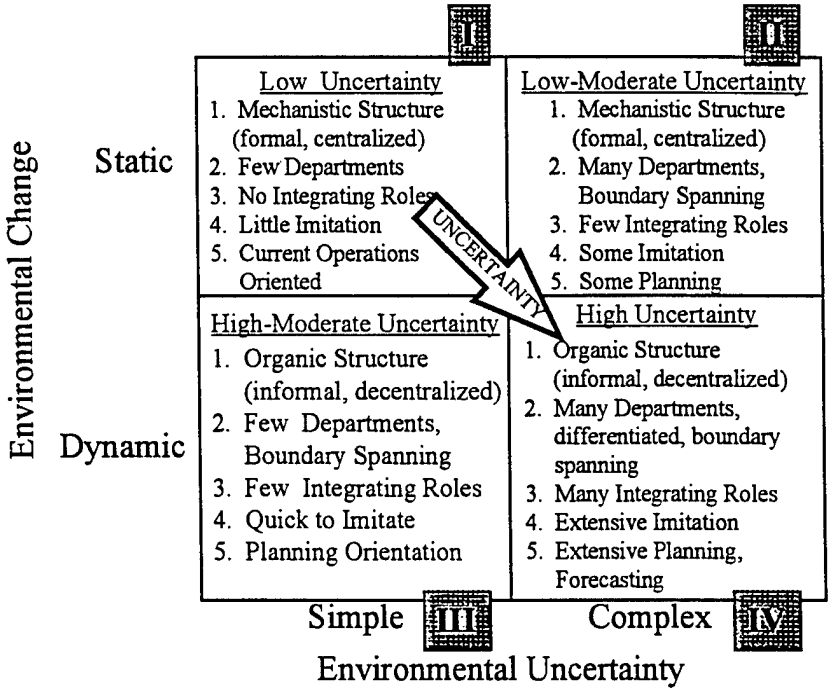
The geographic combatant command's external environment can be viewed along different dimensions. These dimensions describe the environment in terms of a continuum. Aldrich says that the continuum can have different dimensions, and the extreme positions includes stable or unstable, homogeneous or heterogeneous, concentrated or dispersed, or simple or complex environmental characteristics.[121] Aldrich's ideas revolve around an environmental need which organizations must satisfy to be successful: information. Informational needs are important because warfighting CINCs operate within uncertain environments which are characterized as having incomplete external and internal information.

Environmental uncertainty means that commanders do not have complete information about environmental factors and, therefore, cannot predict accurately environmental changes using today's information systems. This inability to accurately predict environmental change causes uncertainty because actions are difficult to estimate and decisions are difficult to

[121] Howard E. Aldrich, *Organizations and Environments* (Englewood Cliffs, NJ: Prentice-Hall, 1979).

rationalize.[122] According to Duncan, static or dynamic and simple or complex dimensions are the two prevalent characteristics.[123] These two dimensions are captured in a contingency framework for environmental uncertainty and organizational response.

FIGURE 3 - CONTINGENCY FRAMEWORK FOR ENVIRONMENTAL UNCERTAINTY AND ORGANIZATIONAL RESPONSES [124]



The Contingency Framework

The contingency framework in Figure 3 is arranged along two environmental dimensions: degree of uncertainty and degree of change. The x axis represents the

[122] Christine S. Koberg and Gerardo R. Ungson, "The Effects of Environmental Uncertainty and Dependence on Organizational Structure and Performance: A Comparative Study," *Journal of Management*, June 1987, 725-737.

[123] Robert B. Duncan, "Characteristics of Organizational Environment and Perceived Environmental Uncertainty," *Administrative Science Quarterly*, September 1972, 313-327.

[124] Adapted from Duncan, 1972, 63.

environmental uncertainty dimension which ranges from simple to complex and the y axis represents the environmental change dimension which ranges from static to dynamic.

In general, the simple-complex dimension involves the characteristics of environmental complexity and uncertainty. Multiple environmental factors can interact and affect organizations such as the geographic combatant commands. The more factors which interact and impact upon a warfighting organization, the more complex and changing are their environments. Organizations which are influenced by few factors are considered more simple. Simple environments are more predictable and, therefore, organizational control is easier to maintain. Organizations which navigate within simple environments can estimate more accurately the impact of change upon them because only a few relevant factors influence them. Complex environments, on the other hand, are more problematic for organizational control because there are numerous environmental factors which influence output. These highly interdependent factors cause environmental uncertainty and increase the amount of organizational risk. The risk can be in the form of inability to control one's organization, inability to innovate and adapt, or the inability to survive within a rapidly changing external environment. All of these contingency responses to risk are important for geographic combatant commands to adjust their warfighting planning and execution. Internal organizational structures must be constructed appropriately to allow flexible and adaptive responses.[125]

The static-dynamic dimension "...indicates the degree to which the ... external environment remain[s] basically the same over time or are[is] in a continual process of

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[125] Gregory G. Dess and Donald W. Beard, "Dimensions of Organizational Task Environments," *Administrative Science Quarterly*, March 1984, 52-73.

change."[126] Dynamic conditions change suddenly requiring an organizational response to deal with the changes.[127] For example, a geographic combatant command is highly vulnerable to political factors which can rapidly undermine support for a military activity, a procurement decision, a personnel policy, or a favorable budget. The amount of organizational autonomy provided to a geographic combatant command is largely a product of Congress authorizing a specific level of independent actions to DoD. This autonomy can be easily replaced with stringent oversight procedures if Congress considered this an important political agenda. International factors can take a geographic combatant command from a peaceful organization to a war-making one in a matter of hours or days.

In the simple-static environment (see quadrant I in Figure 3), organizational uncertainty is low. Small environmental changes occur and the factors which impact the organization are few. In the static-complex environment (quadrant II), organizational uncertainty is low to moderate. Within this environment, there are small environmental changes which impact an organization; however, the factors that do change are integrated and complex which requires some type of organizational response.

In the simple-dynamic environment (quadrant III), even though environment factors are few and not too interdependent, they are dynamic. The environment has a large amount of change. This instability can lead to unpredictable environmental factors which cause a high degree of uncertainty. This uncertainty places an organization at risk. Finally, the complex-dynamic environment (quadrant IV) is the most uncertain. Not only are environmental factors

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[126] Duncan, 316.

[127] Ray Jurkovich, "A Core Typology of Organizational Environments," *Administrative Science Quarterly*, 19(3), September 1974, 380-94.

constantly changing and interdependent, they are also highly complex which makes predicting organizational responses to environmental conditions extremely difficult.

Organizational Responses

In general, a geographic combatant command can adapt to its external environment in various ways. Synchronizing deep battlespace activities and achieving unity of effort occurs in this highly changing and complex environment. CINCs must assess accurately their external environment and ensure organizational structures are adaptive to the environment. Internal organizational structures and external environments must be properly balanced for organizations to be successful. There are different ways which organizations can adapt their internal structures to external environments. These methods are shown in Table 2 and discussed next.

Table 2:
Adaptation Mechanisms for Organizations to Cope With Environmental Uncertainty

1. Mechanistic or Organic Structure
2. Organizational Differentiation
3. Integrating Functions
4. Imitation
5. Planning

Mechanistic/Organic Structures

The amount of formal structure and control placed on personnel varies with environmental characteristics. More uncertain environments require more flexible organizational control structures. Both mechanistic and organic organizational forms are used when adapting to environmental demands. According to Burns and Stalker, a mechanistic

organizational structure is appropriate in stable, simple environments which are characterized with low uncertainty.[128] Rules, regulations, centralized decision-making, and formalized hierarchies are characteristics of mechanistic organizations. Alternatively, for organizations which operate within complex and dynamic environments, an organic organizational structure is more appropriate than a mechanistic one because organic structures are inherently more flexible and adaptive. Within organic structures, rules and regulations, formal hierarchies, and centralized decision-making are replaced with informal operating procedures which work effectively given the constantly changing environment. Hierarchies and chains of command are replaced with powerful personnel who are information rich. Decision-making is highly decentralized. These seemingly chaotic organizations are adaptive, flexible, and innovative.[129] See Table 3 for an overview of mechanistic and organic organizational characteristics.

Table 3: Mechanistic and Organic Organizational Forms[130]

Mechanistic	Organic
1. Tasks are broken down into specialized, separate parts	1. Employees contribute to the common task of the department
2. Tasks are rigidly defined	2. Tasks are adjusted and redefined through employee interactions
3. There is a strict hierarchy of authority and control, and there are many rules	3. There is less hierarchy of authority and control, and there are few rules
4. Knowledge and control of tasks are centralized at the top of the organization	4. Knowledge and control of tasks are located anywhere in the organization
5. Communication is vertical	5. Communication is horizontal

[128] Tom Burns and G.M. Stalker, *The Management Of Innovation* (London: Tavistock, 1961).

[129] Ibid. See also Gareth Morgan, *Images of Organization* (Beverly Hills, CA: Sage Publication, 1986).

[130] Gerald Zaltman, Robert Duncan, and Jonny Holbek, *Innovations and Organizations* (New York, NY: Wiley, 1973).

Morgan lists these strengths with mechanistic organizations: work well with simple tasks; stable internal environments; produce a similar product over time; precision is important; and, humans are "compliant and behave as they were designed to do."[131] The limitations of a mechanistic organizational structure are not insignificant: difficult in adapting to changing external environments; results in "mindless and unquestioning bureaucracy"; self-interested goals become more important than organizational goals; dehumanizes human input.[132]

On the other hand, organic organizational structures are important to allow human choice and decision-making to be decentralized at low levels. This low level decision-making allows employees to be empowered and more responsive to environmental change.[133] The disadvantages of an organic structure center around organizational control. Controlling the output or actions of the organization is difficult because there are few rules and hierarchical relationships. As organic organizations respond to environmental uncertainty, controlling output becomes problematic because decision-making power is decentralized.

Differentiation

Combatant commands can respond to uncertain environments by increasing the structural differentiation among various staff levels.[134] Differentiation involves the

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[131] Morgan, 1986, 34.

[132] Ibid., 35.

[133] Ibid., 54.

[134] Jay W. Lorsch, "Introduction to the Structural Design of Organizations," in Gene W. Dalton, Paul R. Lawrence, and Jay W. Lorsch, eds. *Organization Structure and Design* (Homewood, IL: Irwin and Dorsey, 1970) 5.

specialization of tasks within departments or divisions to cope with the increasing environment complexity. Specialized sub-units can focus their attention on specifically tailored environmental aspects, thus helping the command cope with this complexity. Success in this environment requires special expertise. However, a problem associated with an organizational structure which is highly differentiated is that the need for coordination among the different levels and integration of functions becomes intensified--the potential for stovepiping information is high. Because sub-unit functions and focuses vary so widely, coordination becomes an important organizational initiative in its own right.

Integrating Roles

To cope with the increasing need for cooperation among highly differentiated organizational sub-units, integrating roles must be created. Inter-divisional cooperation must produce a unified effort among key organizational players. Within complex and dynamic environments, ensuring unity of effort is an important function. Therefore, integrators that pull together key issues and ideas from differentiated sub-units must be used.[135] For example, in the DoD, integrators within a geographic combatant command may include the liaison elements among components which bring issues to the CINC's forum from the battlespace environment. Additionally, intelligence personnel continually assess environmental factors which impact upon the commander's perspective of the battlespace environment. Organizations in stable, simple environments require almost no integrating functions because

[135] Ibid.

ensuring unity of effort among various staff functions can occur when environmental change is easy to predict.

Imitation

Another organizational response to environmental uncertainty is institutional imitation.[136] Organizations tend to imitate similar organizations within the same general industry when coping with uncertain environments. Successful organizations tend to have their strategies, organizational structures, and other aspects imitated by less successful organizations. For example, despite different environmental constraints among CINCs, there may be a high degree of structural imitation among commands to improve their DBS functions and processes. Even outside of the U.S. defense industry, military structures from other countries have imitated the U.S. military structure. The Republic of Korea (ROK) is an example of a military structure which has imitated structures and strategies from another military organization within the global defense industry.

Planning

Organizational planning and forecasting become important initiatives when operating in uncertain environments.[137] Long range planning and extensive environmental forecasting to help organizations position themselves for future opportunities are hallmarks of successful organizations.[138] Planning and forecasting can help geographic combatant commands

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[136] Richard H. Hall, *Organizations: Structures, Processes, and Outcomes* (Englewood Cliffs, NJ: Prentice-Hall, 1987).

[137] Ibid.

[138] Morgan, 1986, 54.

minimize adverse impacts from environmental change to the extent that they have planned for such contingencies. The CINCs may conduct extensive planning and forecasting, including updates to their planning cycles and having formalized planning and forecasting functions. These functions may be important adaptive mechanisms when dealing with dynamic, complex, and highly politicized environments. In stable, simple environments the amount of planning and forecasting is minimal because unforeseen factors tend to be less significant. Environmental demands in the future are similar to the environmental demands today in these stable environments.

These organizational responses to environmental uncertainty are important to CINCs for various reasons. CINCs must customize their organizational structures to respond to their external environments. Mechanistic structures normally do not permit ad hoc solutions to real-time battlespace changes. However, DoD's decentralized execution tenet allows tactical level commanders flexibility in dealing with their individual battlespace problems. Joint staffs which work operational level issues may not have this same level of decentralized decision-making ability. When operating inside a highly complex and dynamic environment (quadrant IV), processes and functions may have to be specialized to help the organization cope with small pieces of a changing and uncertain environment. Many integrating roles may be created to ensure sub-units' outputs are coordinated and working toward the same goals. Extensive planning and forecasting functions may be necessary to predict organizational response to future conditions.

Conclusion

A geographic combatant command's external environment is dynamic and complex. It is constantly changing. Financial, economic, political, and other key factors all interact to increase environmental uncertainty. This environmental uncertainty requires organizational responses such as: creating mechanistic or organic structures, establishing various integrating functions, and conducting extensive planning and forecasting. The geographic combatant commands' responses to uncertainties will be discussed in Chapter 5; however, there is a delicate balance between centralized control and synchronized deep battlespace actions, and decentralized execution of the synchronized deep battlespace plan. DBS occurs within this highly changing environment. Added to the environmental uncertainty is the Clausewitzian reciprocal and total nature of war, the human element of military genius, and the fluctuating support of the people. Together, this means that operational commanders have a challenging task in synchronizing deep battlespace actions.[139]

[139] Clausewitz, 1976, v.p.

CHAPTER 4

RESEARCH DESIGN

A triangulated research design was used to test the research hypotheses. The triangulation involved a single case study with data collected from interviews, secondary publications, and archives covering an extended time period and including multiple units of analysis and perspectives. This chapter proceeds as follows: case selection criteria are discussed next, then Yin's "Type 2" research method is detailed; the research hypotheses are then described and discussed; finally, the research methodology, data collection and analysis, and problems and constraints are addressed.

Case Selection

The selection of cases in case study research depends more upon the research question and resource limitations than upon statistical sampling properties.[140] The focus of this research suggests these guidelines in selecting cases. First, to study factors which influence DBS implementation success, relatively mature exercises or large-scale real-world contingencies within geographic combatant commands are needed. Second, a setting in which outcomes are used to support different decisions is needed. This is necessary because outcomes are hypothesized to influence DBS decisions and OPLAN modifications. If outcomes from these cases are not used in decision-making, then their effects on DBS initiatives would be irrelevant.

[140] Kathleen Eisenhardt, "Building Theories from Case Study Research," *Academy of Management Review*, 14(4), December 1989, 532-550.

Yin's Type 2 Case Study

The research design relies upon Yin's "type 2" design.[141] A type 2 case study is one which uses a single organization, such as DoD, as its test case. This test case is evaluated using multiple units of analysis and perspectives, such as outcomes from various exercises, perspectives from various geographic combatant commands and joint task forces, and other process units (such as meetings, organizational structures, and roles). A type 2 case study design is appropriate because DoD is the critical case in testing DBS implementation effects. A type 2 case study design is called an "embedded" design for single case study analysis because it uses multiple units of analysis in the design stage. Yin says that a single case study design is appropriate when "...it is the *critical case*...", or it "...represents an *extreme or unique case*", or it "...is the *revelatory case.*"[142] Additionally, he advocates a type 2 strategy when attention is given to organizational sub-units.

Multiple units of analysis (for identifying sources of data) were conducted within DoD including: military and civilian leadership and management personnel; representatives from congressional studies; operations personnel; and more. Organizational factors such as doctrine and organizational structures were analyzed. Individual processes, programs, and outputs were also examined. In short, all relevant stakeholders were analyzed to varying degrees.

The research design included data collected from DoD archives, published secondary sources, and personal and telephone interviews. Follow-up interviews were conducted when

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[141] Robert K. Yin, *Case Study Research: Design and Methods*, 2nd ed. (Thousand Oaks, CA: Sage Publications, 1994) 39.

[142] Yin's emphasis, 38-40.

necessary. Hypotheses, methodology and data analysis, and problems and constraints are discussed next.

Research Hypotheses

H_{1a}: *Deep battlespace synchronization of joint service actions leads to greater unity of effort.*

H_{1b}: *Sequencing and prioritizing operational tasks leads to greater unity of effort.*

The two hypotheses stem directly from the literature review in Chapter 2 and are related to the contingency framework described in Chapter 3. H_{1a} postulates that unity of effort requires deep battlespace synchronization. The synchronization of deep battlespace activities involves numerous joint service actions. A commander's area of operations involves activities within it, as well as actions within the area of influence and area of interest. Collectively, these areas represent an operational commander's battlespace. To achieve a CINC's campaign objectives, unity of effort among different areas of operations and bordering areas of influence must occur across service boundaries. During the reality of war, there is little room for parochial service interests. Instead, planning and executing the deep battle should include integrated actions regardless of service or component affiliation. This hypothesis states that DBS is a necessary condition to achieve the CINC's campaign objectives with a unified effort.

Unity of effort implies that some value for efficiency and minimizing redundant actions exists within geographic combatant commands and joint task forces. Otherwise, unity of effort would only require enough coordination to avoid fratricide without consideration for making smart decisions. In this analysis, efficiency is defined as the ratio of inputs over

outputs.[143] Input and output measurements can vary depending on the actions being analyzed. For example, input may involve the cost of a particular weapon system as compared to its probability of kill. Alternatively, the amount of munitions expended and warfighter exposure to enemy fire are other measurements. Outputs can be as simple as aircraft sorties flown in a day, fire support coordination line movement, or enemy tanks or artillery destroyed. Unity of effort values efficient solutions, however, the measurements of inputs and outputs vary with the situation or environment.

In H_{1b}, the essence of achieving unity of effort is postulated to be through sequencing and prioritizing lethal and non-lethal actions in deep battlespace. Sequencing operational level tasks ensures that activities are integrated in time and space; whereas prioritizing tasks helps commanders focus on the most important campaign elements. Prioritizing tasks is a difficult and subjective process. This hypothesis proposes that sequencing and prioritizing operational tasks is a necessary condition for achieving unity of effort in deep battlespace.

Research Methodology and Data Analysis

This study employed exploratory case study research to evaluate DBS within DoD's exercise program and real-world contingencies. Case study research complements traditional modes of deductive reasoning by providing perspective on complex interactions among variables which occur in social settings.

[143] Garry D. Brewer and Peter deLeon, *The Foundations of Policy Analysis* (Pacific Grove, CA: Brooks/Cole Publishing Company, 1983) 335.

Yin's type 2 single case study with embedded units of analysis was used to analyze the effects of DBS. Studying outcomes from DoD's exercises and contingencies provided meaningful answers to the above hypotheses. The unit of analysis was the firm and discussion of DBS factors was limited to instances in which they significantly affected the trajectory of DoD's warfighting efforts.[144]

Data Collection

Three types of data were gathered: archival records, secondary published sources, and interview data. Archival data were collected from the DoD's JULLS database. This database is comprised of JCS exercise information, including background and problem discussions, and recommended solutions which were reviewed by the services in a formalized process. Additionally, individual service lessons learned databases were examined to gain insight into service-specific problem areas and concerns.

Secondary published sources included: significant memoranda; policy handbooks; task force reports; General Accounting Office (GAO) studies; federally funded research reports by independent think tanks; service presentations to Congress; briefing transcripts; and many others.

High level military and civilian DoD employees were interviewed from the services (except the U.S. Coast Guard), each of the geographic combatant commands, Secretary of Defense (OSD) staff, and congressional appointed planning committee members.[145]

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[144] The unit of analysis in this study is "the firm," but it is a single case study with multiple units of analysis. Firms, such as the U.S. Army, U.S. Air Force, joint staff, geographic combatant commands and joint task force staffs were analyzed to varying degrees for this study.

[145] Committee representation included the Commission on Roles and Missions, Quadrennial Defense Review, and Deep Attack Weapons Mix Study.

Interviews were conducted with functional managers on joint staffs responsible for DBS implementation. Decision-makers with organizational longevity between 1986 and 1997 were interviewed. Additionally, follow-up telephone and personal interviews were conducted within various functional and hierarchical levels to clarify and amplify findings when necessary. The purpose of the interviews was to develop an in-depth understanding of the central research question. Structured interviews were used to encourage open and honest viewpoints, and a master set of interview questions was the basis for each interview (see Appendix A). Interviews were designed to provide contextual insights. All respondents were offered confidentiality between themselves and the researchers, and interviewees were identified based on their centrality (decision-making authority or responsibility for implementation) to the overall DBS process. As a result, views of those who opposed the efficacy of DBS are unlikely to be represented in the study. This is likely because this research is retrospective, taking place after DBS was implemented. Therefore, it is likely that neither opposing decision-makers could be easily identified nor that they would express their opposition, if identified. Opposing viewpoints were gathered from various secondary sources.

See Table 4 and Figure 4 below for the profile of interviewees. Official titles and duties are purposely generic to protect the identity of interviewees. Over 50% of the interviewees were in military grades of O-6 or above, or civilian equivalent in one case. As part of the research design, interviewee identities were guaranteed to be protected to encourage honest and unfiltered responses. Additionally, a "senior staff" comment in Table 4 identifies a key decision-maker within the particular warfighting function in which the person works. Furthermore, responses from all services were captured with the exception of the U.S.

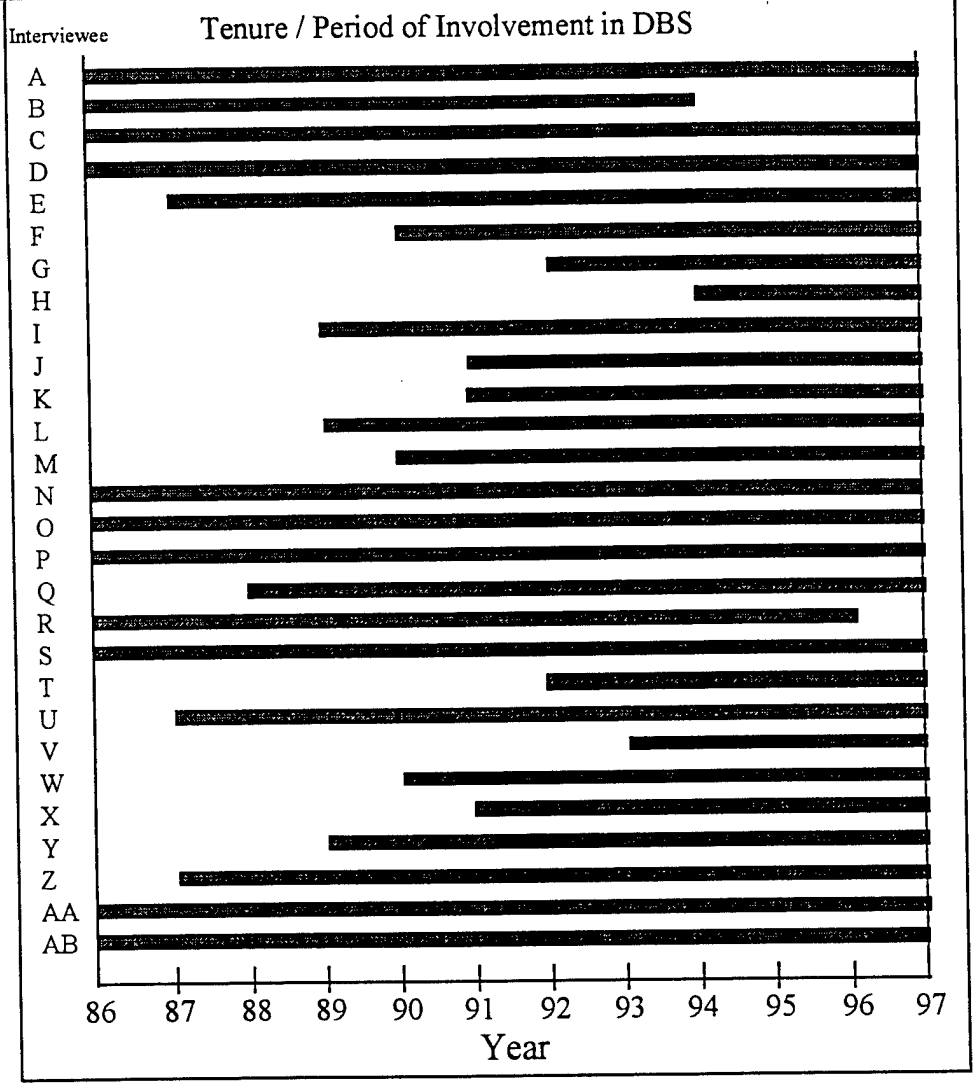
Coast Guard which was excluded purposely from the research design because of its supporting role to the Navy during combat. As the reader can observe, job tenure and level, and specific duties and organizations were evenly distributed. Moreover, the multiple units of analysis can be observed in the interviewee profiles.

Table 4:
Profile of Interviewees: Deep Battlespace Synchronization Involvement

Person	Period of Involvement	Current Title/Duties
A	85 - 97	Office of Secretary of Defense - Military
B	82 - 94	Office of Secretary of Defense - Civilian
C	82 - 97	National Planning Committee - Military
D	85 - 97	Director, Command & Control Theory & Experimentation
E	87 - 97	U.S. Atlantic Command, J-7, Senior Leader
F	90 - 97	U.S. Atlantic Command, J-7 Action Officer
G	92 - 97	U.S. Atlantic Command, Exercise Plans
H	94 - 97	U.S. Atlantic Command, J-3, Senior Staff
I	89 - 97	Deep Attack Group, Director
J	91 - 97	Deep Attack Group, Action Officer
K	91 - 97	U.S. European Command, J-5, Senior Staff
L	89 - 97	Supreme Headquarters Allied Powers Europe, Southern Region, JFACC Senior Staff
M	90 - 97	U.S. Pacific Command, J-3, Senior Staff
N	83 - 97	U.S. Pacific Command, J-3, Senior Staff
O	83 - 97	U.S. Pacific Command, J-3, Senior Staff
P	86 - 97	U.S. Pacific Command, A-5, Senior Staff
Q	88 - 97	U.S. Pacific Command, (CFC) A-5, Senior Staff
R	85 - 96	U.S. Pacific Command, (CFC) Sync Cell
S	82 - 97	U.S. Pacific Command, (CFC) J-5, Senior Staff
T	92 - 97	U.S. Southern Command, J-3 Staff
U	87 - 97	U.S. Central Command, A-3, Senior Staff
V	93 - 97	U.S. Central Command, J-3 Staff
W	90 - 97	U.S. Central Command, J-5 Staff
X	91 - 97	U.S. Central Command, G-3 Staff
Y	89 - 97	U.S. Central Command, J-5, Senior Staff
Z	87 - 97	Joint Staff Matters, Senior Staff
AA	86 - 97	Atlantic Fleet, Planning Officer, Senior Staff
AB	84 - 97	Joint Staff, J-33 Staff

Figure 4

Profile of Interviewees: Deep Battlespace Synchronization Involvement



The telephone interview methodology provided a safety factor for respondents to speak freely without the face-to-face contact involved in a personal interview. Additionally, interviews focused directly on the case study topic and provided perceived causal inferences. Because interview data are verbal reports, they are subject to problems of biases, "...poor recall, and poor or inaccurate articulation."[146] The information gathered from telephone and

[146] Yin, 1994, 85.

personal interviews helped to frame the analysis of archival and secondary sources. The archival and published sources were used to corroborate interview data. Additionally, verification of interviewee comments was substantiated from other sources when possible. Furthermore, only one interviewer conducted the interviews to prevent multiple interviewer biases.

Multivariate Models

Studying DBS within the complex environments of a joint organization necessitates a comprehensive, integrated approach to variable analysis. In this case study there are no single, really good measures of output, nor any high quality, comprehensive measures of input. Thus, a large number of heuristic indicators were employed. These indicators provide suggestive tendencies and meaningful data that, when viewed in their aggregate form, helped to analyze the hypotheses. The factors from the contingency framework in Figure 3 were used to assess how DoD conducted DBS. Additionally, organizational structure and process factors, as well as individual contributions, were analyzed. A general model was created which can be expressed as follows:

$$DBS = O_s + O_p + I_w + E_e$$

In this simple model, DBS is influenced by the combined effects of organizational structure (O_s), organizational processes (O_p), an individual's webs of belief as accumulated throughout one's life (I_w), and the external environmental (E_e) factors as discussed in Chapter 3. It is postulated that DBS is dependent upon these four independent variables. Findings about these variables will be discussed in the next chapter. Moreover, another simple model

which describes influences on unity of effort was created with the dependent variable being unity of effort (U_e) and independent variables being operational objectives (O_o) and tasks (O_t), degree of sequencing (S_t) and prioritization (P_t) of tasks, and inter-service goal congruency (G_c). This model can be expressed as follows:

$$U_e = O_o + O_t + S_t + P_t + G_c$$

In this model, unity of effort is influenced by operational objectives and operational tasks. The operational objectives are the CINC level campaign objectives. Unified action should help to reach these objectives through sequenced and prioritized tasks focusing deep battlespace targeting efforts. Unified action should also integrate other non-lethal aspects of deep battlespace actions. Additionally, the inter-service goal congruency variable describes the degree of inter-service cooperation within joint staffs. Despite the difficulty in measuring precisely this variable, estimating the degree of conflict or harmony among the services is an important variable in assessing overall unity of effort within a geographic combatant command or joint task force. DBS may be strongly influenced by these unity of effort variables.

Establishing Causality

Establishing causality between causes and effects is an important research goal. This study seeks both significant relationships between dependent and independent variables, and other relationships which are measured and verified through triangulated comparisons. Babbie discusses three criteria for causality. First, the cause must precede the effect in time. Second, the two variables must be empirically correlated with one another. Third, the observed

empirical correlation between two variables cannot be explained because of the influence of a third variable.[147]

In this study, measuring the dependent and independent variables is problematic. Both sets of variables are complex and integrated. For example, there are a large number of independent variables, all of which happen more or less simultaneously, such as defense budget cutbacks and reduced major threats, an increased reliance upon modeling and simulation in war planning, and more. The implications of this complexity make it difficult to extrapolate the exact cause of changes and directly relate them to DBS implementation. However, this complexity also provides much contextual data providing for a more robust analysis, rather than selecting one or two measurable variables and drawing conclusions. What is sacrificed for scientific-like precision is gained in a real-world analysis of an important concept which could not otherwise be evaluated comprehensively. When the entire variable sets are evaluated together as a group, causal analysis may be made using the framework.

Data Manipulation

Interview and published data were analyzed using pattern-matching. Pattern-matching develops prediction patterns concerning key DBS factors while examining results from other sources. The predicted patterns were compared to archival data. Associations were then made from the observation of predicted patterns and the absence of alternative patterns.[148]

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[147] Earl Babbie, *The Practice of Social Research*, 6th ed. (Belmont, CA: Wadsworth Publishing Company, 1995) 72.

[148] Yin, 106-110.

Eisenhardt suggests two relevant methods of data analysis which were useful to this study. The first method of analysis involved reorganizing the interview transcripts to create a chronological account of DBS implementation results. The transcripts were then superimposed on one another, and overlapping descriptions compared to identify common and unique perceptions of events. Unusual interpretations which were unlikely to reflect simple memory lapses were identified for further investigation. Follow-up interviews were conducted, as necessary, to explore more fully conflicting viewpoints. Archival records were used to corroborate event chronology and to provide a sanitized perspective of critical issues and their resolution during the case study period. The second method of analysis required dissecting and reorganizing the transcripts around major factors suspected to influence DBS. The transcripts were reviewed again with the objective of identifying unanticipated factors. Archival records were also reviewed during this stage of analysis in an effort to corroborate important factors while providing a perspective on the effects of DBS implementation.[149]

Validity

Case studies are criticized frequently for their inability to generalize results to a larger population or research question. See Table 5 for methods to increase validity. Yin says that external validity has been a major barrier in doing case study research.[150] This comment is made frequently when comparing case study research with survey research which relies upon statistical sampling to generalize to a larger population. According to Yin, "...this analogy to

[149] Eisenhardt, 1989.

[150] Yin, 1994, 36.

samples and universes is incorrect when dealing with case studies."[151] Case studies rely upon analytical generalizations. In order to generalize beyond the case study findings, a similar test case can be used to replicate findings. In this single case study design with embedded units, there is not another U.S. public organization to compare--DoD is a unique organization. Therefore, data from embedded units were gathered for comparison.

Regarding internal validity, there are threats to consider. One major threat to validity is the effect of maturation. That is, over time an organization's output may improve and become more efficient simply from learning experiences gained from producing the same good or service for a long time period. These effects will be discussed in the next chapter.

Table 5:
Methods to Increase Validity Using Case Study Research[152]

Test	Case Study Tactic	Phase of Research in Which Tactic Occurs
Construct Validity	- Use Multiple Sources	- Data Collection
	- Est Chain of Evidence	- Data Collection
	- Have Key Informants Review Draft Case Study	- Composition
Internal Validity	- Do Pattern-Matching	- Data Analysis
	- Do Explanation Building	- Data Analysis
	- Do Time-Series Analysis	- Data Analysis
Reliability	- Use Case Study Protocol	- Data Collection
	- Develop Database	- Data Collection

[151] Ibid.

[152] Adapted from Yin's "Case Study Tactics for Four Design Tests," 33.

Problems and Constraints

As with any large study, this one has problems and constraints which must be acknowledged. First, no direct observations of geographic combatant commands or JTFs were made by the researchers. Instead, reliance upon verbal reports and secondary observations were used. This lack of direct observation was neutralized by using the triangulated research design to ensure verbal reports were validated in secondary documented, archived, or additional interview data. Second, the simple multivariate models discussed earlier describe variables which influence DBS and unity of effort. These variables are mostly descriptive means of analyzing the research problem. The variables are non-quantifiable, and therefore, difficult to measure precisely. Social science research often involves hard to measure variables which are evaluated by comparisons between data sets. This methodology was used in this paper to ensure findings from these data sets were valid. Again, what is sacrificed in scientific-like precision is gained in much contextual insight about an important research topic which by its very nature is hard to measure. Finally, this paper was written by three authors. Each author was affiliated with a particular service--Air Force, Army, and Navy perspectives were represented continuously throughout the research proposal, design, and execution stages. A conscious effort was made to avoid service parochial viewpoints unless these perspectives were balanced with the other services' views. While the authors attempted to find academic "truth," sometimes this joint approach led to a compromised position among the authors. This coalition approach to research findings is replicated in real-world political interactions among services during resource or mission debates.

Conclusion

This chapter discussed the research design for the project. This design is important because it describes the context in which data were gathered and analyzed. Case selection and methodology were discussed. Additionally, two hypotheses were described to help understand the central research question. Data were gathered to test these hypotheses using the data collection and analysis information described earlier. Finally, multivariate models were presented and validity issues were discussed. The findings are presented and discussed next.

CHAPTER FIVE

FINDINGS AND DISCUSSION

The following sections review evidence from geographic combatant commands, joint task forces, joint exercises, and real-world contingencies on the implementation of deep battlespace synchronization. While there is no single comprehensive measure of DBS, a number of suggestive indicators show that the integration of deep battlespace activities occurred through mechanistic structures. These structures used integrative roles, increased specialization, imitation, and extensive planning and forecasting to adapt to environmental uncertainty. While many factors produced DBS results, knowledgeable observers agreed that the mechanistic structures and other organizational responses to environmental uncertainty, coupled with a commander's intuition and application of operational art, were the most important forces.

This chapter is organized as follows: first, a summary of the major findings is presented; next, the various mechanistic structures used by the different geographic combatant commands to conduct DBS are compiled and addressed; then, each command is discussed in terms of the contingency framework; finally, a discussion of the findings is made.

Overview of Major Findings

See Table 6 for a summary of major findings. These findings represent analyses from the full range of data; they are neither mutually exclusive nor collectively exhaustible. Rather, these findings represent both pragmatic answers to the central research question and more in-depth findings related to the context in which DBS occurs. The following brief discussion of

major findings is intended as an overview for the reader. These findings are discussed throughout the subsequent sections addressing each geographic combatant command and other issues.

Table 6:

Summary of Major Findings

Each geographic combatant command has a unique external environment; however, each CINC's environment is complex and dynamic.
"CINC"ronization through committee is a facade--it is really accomplished through operational art and a commander's intuition.
Synchronization has both tactical and operational level applications--there is a trade-off between centralized control and decentralized execution.
Organizational structures are mechanistic--adaptability to uncertain environments occurs through integrative roles.
Sequencing and prioritizing operational activities in deep battlespace into an integrated plan is key--coordination of activities simply is not enough.
The joint requirements oversight council gives CINCs a direct voice in the acquisition process--deep attack weapons are provided to warfighters through this process.
Politics is a driving factor in deep operations requirements among the services.
Inter-service debate is on-going regarding deep battlespace operations--related to political budget battles.

First, each geographic combatant command has a unique external environment. They function in dynamic and complex environments (quadrant IV) with varying degrees of adaptive responses to international, technological, economic, and other factors. Second, synchronization often occurs through group processes. The group processes involve mechanistic structures which interact to produce a deep battlespace plan. However,

synchronized actions with unity of effort primarily occur through the commander's operational art--called "CINC"ronization.[153] Third, synchronization has both operational level and tactical level applications. This research effort focuses on the operational view of synchronization. The balance between centralized control of planning deep battlespace actions and decentralized execution of that plan is a tension which must be resolved by a commander's intuition and operational art. Fourth, in general, geographic combatant commands respond to environmental uncertainty with mechanistic structures--even in highly dynamic and complex environments. These bureaucratic, hierarchical structures help maintain operational control of war. Each command tailored different mechanistic structures in an adaptive way to cope with environmental demands. Fifth, consolidating sequenced and prioritized operational tasks into an integrated deep battlespace plan is a key synchronization aspect. This deep battlespace plan often links specific actions to operational tasks and operational tasks to operational objectives and campaign strategy. Sixth, the acquisition cycle was once disconnected from a geographic combatant command's warfighting requirements. Today, new acquisition processes give CINCs a direct influence in weapon procurement decisions. New technology provides weapon systems which easily impact multiple battlespace dimensions which CINCs must incorporate into their deep operations. Seventh, the political structure helps to drive deep operational requirements among the services. During times of reduced major threats and downsized defense budget shares, political interest is intensified in weapon procurement debates. Finally, in an extension of the political influence in deep

[153] This term was used by an interviewee describing CINC/CFC's synchronization briefing.

operations, inter-service competition for missions and resources, coupled with technological capabilities, are fueling doctrine and weapon mix debates.

Each of these findings is discussed in more detail in the sections which follow. Next, a discussion on the various mechanistic structures used by geographic combatant commands is presented. These structures are used in varying degrees to cope with environmental uncertainty while producing a deep battlespace plan.

Overview of Mechanistic Structures Within Combatant Commands

This section provides an overview of mechanistic functions and the degree of interaction among structures used by geographic combatant commands. These mechanistic structures include specific departmentalization and integration roles, as well as processes used to synchronize deep battlespace activities. In many cases, specialization occurred within these departments to cope with environmental uncertainty. For example, the battlefield coordination detachment, that is comprised of JFLCC war planners, acts as an information conduit between the JFLCC and the JFACC. In other cases, the battlefield coordination detachment functions as an independent working group with loose relationships with the JFACC.[154]

Each geographic combatant command uses different mechanistic structures to implement DBS within uncertain environments. In general, these mechanisms are designed to accomplish various planning functions. These functions integrate deep battlespace activities

[154] Interview 1997, track sheet #410. Interviewees were assured their comments would remain confidential. To protect their identities, interviewee recordings were coded on interview track sheets to preserve their anonymity. The interview track sheets are maintained in an interview database. This method of citing interview data is used throughout the paper.

by looking at different time horizons. Additionally, the component command structure used by CINCs varies among commands; however, they are organized either by service or function. Furthermore, integrative roles between processes and functions are important elements in how CINCs conduct DBS.

Each geographic combatant command uses processes to complete deep battlespace planning during contingencies. These processes are segmented by time period and function. The segments, in general, include long, medium and short range planning processes. Additionally, a current operations planning element is used in all of the commands. Furthermore, each theater uses the planning processes in different organizational levels. For example, long range planning occurs at the JTF level in U.S. Atlantic Command; in U.S. Pacific Command it occurs within a high level working group linking the CINC and JTF staffs; and, in the Combined Forces Command (CFC), it occurs within both the CINC and functional component staffs. This subsection describes different mechanistic structures, time perspectives, and specific functions used when each geographic combatant command implements DBS. See Figure 5 below for an overview of the processes and functions by command. These processes and functions are described next. The differences in organizational processes and relationships are discussed in detail in the sections on each command.

FIGURE 5 - MECHANISTIC ORGANIZATIONAL STRUCTURES AND INTERACTIONS BY COMBATANT COMMAND AND FUNCTION

	Operational Synchronization Processes in Use					
Geographic Combatant Commands	Long Range Planning	Mid Range Planning	Short Range Planning	Current Operations	Integra-tion Working Groups	CINC Com-ponent Structure
PACOM	✓	✓	✓	✓	✓	S + F
CENTCOM	✓	✓	✓	✓	✓	S + F
EUCOM	✓	✓	✓	✓	*	S + F
ACOM	✓	✓	✓	✓	*	S + F
SOUTH COM				✓		S

S = Service *= JFFC is used to accomplish limited integration
F = Functional ✓= Process in place

Long Range Planning

In general, geographic combatant commands use long range planning processes to think about future possible courses of action. These processes focus on deep battlespace activities occurring more than seven days in the future; oftentimes, this planning function considers planning events for the next campaign phase. In some theaters, a "strategy cell" performs this role, while in other commands a different working group performs part of the role. The long range planning output is sometimes a planning directive for component use or a decision briefing to the CINC for future operations.

Mid-Range Planning

The mid-range planning process integrates DBS activities from 48 hours to seven days

in the future. Mid-range planning is handled differently in each theater. For example, some commands combine the long and mid-range planning processes into one working group. In other commands, there are mid-range planning groups responsible exclusively for this time horizon. Typical mid-range planning functions include interpreting the CINC's daily guidance, sequencing and prioritizing operational tasks, estimating apportionment priorities, and gathering combat assessment.[155]

Short Range Planning

Short range planning functions address DBS activities occurring between 24 and 48 hours in the future. A formal process responsible for this time frame is important to allow rapid adjustments in deep battlespace actions based on results from current battle realities. Short range planning functions include such activities as selecting targets, gathering combat assessment, allocating the apportionment decision, and more. Several working groups are used to support the planning effort for this time frame. For example, the JFLCC's deep operations coordination cell (DOCC) has a 24 to 48 hour focus for nominating interdiction targets to match the future ground scheme of maneuver.

Current Operations

This element of planning is focused on the current battle. Its charter is to execute the deep battle. To fulfill this charter, it is empowered and quick reacting. The planning elements evaluate current warfighting events, and redirect the sequenced and prioritized attacks, as

[155] Interview 1997, track sheet #100.

required, during execution. Normally, the current operations function has tremendous decentralized decision-making power. This function is often conducted from a command center belonging to the JFACC, but there are variations among theaters. Current operations functions include quick fires, re-assigning alert aircraft new missions, changing missions based on combat assessment, and more.

Integration Working Groups

Duncan's model describes the importance of integrating actions for organizations to cope with uncertain environments.[156] Many different integrating functions, roles, and working groups were revealed during data analysis. Some of these functions were informal, based on the personalities of individuals in leadership positions. Other mechanistic structures were designed specifically to integrate various command elements. For example, in CFC, the CINC level battlefield coordination working group is composed of liaisons from each component and all J-staff representatives. This working group meets twice a day in Korea to allow component battlespace concerns to surface to the CINC level. It also provides an information loop from the CINC staff to each component. This frequent interaction among the various command echelons helps CFC adapt to environmental complexity and change.

CINC Component Structure

Combatant commands are typically composed of two different subordinate command structures. These structures are organized either by service or function. Service components

[156] Duncan, 315.

are sometimes used for warfighting, especially within theaters having a littoral or maritime focus. Functional components are sometimes used to provide the proper emphasis over battlespace domains. Most geographic combatant commands use a combination of both service and functional components in their warfighting efforts. When combined service and functional components are used, the service components organize, train and equip the forces and the functional components do the warfighting.

Deep Battlespace Synchronization Approaches

The organizational structures used by the various geographic combatant commands show different DBS planning time horizons, as well as a sampling of the different processes among commands. This section describes how the geographic combatant commands implement DBS in detail. It describes their external environments and internal organizational structures used to implement DBS given their unique environmental demands. Furthermore, it describes how each command adapts its organizational structure to cope with uncertainty using the categories for organizational response from Chapter 3.

This section discusses four of the five geographic combatant commands as shown in Table 7 below. CFC is discussed in the U.S. Pacific Command (PACOM) section because of its importance in DBS implementation. CFC is responsible for fighting one of the two current major theater wars.[157] Integrating CFC's functions and processes within the PACOM discussion would be misleading. Additionally, much data were gathered and analyzed about U.S. Southern Command (SOUTHCOM). SOUTHCOM's warfighting focus is not on deep

[157] Formerly called "major regional contingencies."

battlespace, major theater wars or smaller-scale contingency operations.[158] Rather, low level terrorism and counter-drug operations occupy SOUTHCOM's total efforts. For this reason, SOUTHCOM is not discussed.

Table 7: The Geographic Combatant Commands
U.S. Pacific Command Combined Forces Command
U.S. Central Command
U.S. European Command
U.S. Atlantic Command

U.S. Pacific Command

The PACOM area of responsibility (AOR) is comprised of the Asian continent from the Pacific Rim to India, Australia, and the western Pacific island chains. The region is the largest and one of the most complex of the geographic combatant commands. Its broad variety of politics, religion, economics, and coalitions provide significant challenges. Adding to the complexity, the Pacific Rim is an area of growing economic activity causing a host of U.S. concerns. Moreover, potential North Korean aggression overshadows PACOM's regional efforts. These concerns are discussed next.

[158] Interview, 1997, track sheet #600. "Smaller-scale contingencies" were formerly called lesser regional contingencies.

Environmental Factors

PACOM's expansive AOR has numerous countries with diverse cultural, political, economic, and religious impacts. Deterring local aggressors while providing credible regional presence are the command's theater engagement priorities. This AOR was the historical location for many major offensive military operations, such as the Russo-Japanese War of 1905, World War I, World War II, the Korean War, the Cold War, and the Vietnam War. Relevant external environmental factors impacting the region today are discussed next and are summarized in Table 8 below.

Table 8: **External Environmental Factors Impacting U.S. Pacific Command**
Military Threat Pacific Rim Economic Activity Politics International Factors

Military Threats Constantly Challenge PACOM. These threats include: Chinese aggression against Taiwan; North Korean aggression against the Republic of Korea; India's expanding military capability; and, Pacific Rim-based international criminal activity supported by the rapid increase in regional wealth. PACOM's regional strategy is increasingly more difficult to pursue as competition and tension build in the region.

North Korea is the most acute regional threat. Widespread famine and starvation plague the country. The North Korean military constantly threatens aggression unless South Korea and the U.S. provide economic assistance.[159] Thinly veiled offensive threats following

[159] Tom Plate, "Why North Korea Matters to America," *Los Angeles Times*, 1 April 1997, 11.

one of North Korea's busiest military training cycles serve as a reminder of the level of regional tensions.[160]

Economic Activity. Economic activity is growing rapidly through Pacific Rim trade with South America and the United States. This increased opportunity has led to new wealth causing the region to have greater importance in U.S. national interests. Increasing economic activity is bolstering competition among member states.[161] Additionally, the Pacific Rim's struggle for bigger labor forces and natural resources introduces a new problem for PACOM. Long standing regional allies, such as Japan, may have to fight for their economic well-being. Consequently, emerging economic considerations are potential sources of conflict requiring PACOM and U.S. Department of State involvement to maintain regional stability.

Politics. Regarding politics, several shifts in regional balance of power may occur in the near future. For example, the U.S. is planning to decrease its large military presence in Okinawa. The number of forces will be reduced and other forces may be repositioned to a mobile platform located off the Okinawan coast.[162] Additionally, Britain is steadily reducing its presence in Hong Kong as it prepares to give control to China--formally the transition begins in July 1997. Since China has little experience in running a free market economy, critics predict that a Chinese controlled Hong Kong will have negative impact on the regional

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[160] John M. Shalikashvili, "An Address" (Newport, RI: U.S. Naval War College, 29 April, 1997).

[161] Gregg K. Kakesako, "Navy Chief Stresses Importance of U.S. Presence in Pacific Rim," *Honolulu Star Bulletin*, 2 April 1997, 5.

[162] Andrew Pollack, "Okinawa Copter Base May Move Out to Sea," *The New York Times*, December 2, 1996, 6.

economy and stability.[163] The U.S. has adhered to a one-China policy since 1978; however, informal U.S. relations with Taiwan have strained U.S.-Chinese relationships.[164] Furthermore, the possible implosion of North Korea as a nation will have widespread effects on the region. North Korea's failure to address its deteriorating domestic situation cannot go on indefinitely. In a recent speech, the Chairman, Joint Chiefs of Staff predicted that "the Korean situation" will be resolved in the next decade or so. He stated that "...we're seeing the last chapter unfold."[165]

International Factors. According to Admiral Macke, former CINCPAC, the "...lack of multi-lateral security organizations characterizes the region."[166] This resulted in numerous diplomatic-military relations administered by PACOM, as well as international defense relations. In addition to having close relations with members of the Association of Southeast Asian Nations, the U.S. maintains alliances with the Philippines, as well as unofficial relations with Taiwan. Therefore, PACOM plays an important role in the complex balance of power in the western Pacific. This is accomplished through forward military presence, exercises with countries in the region, and a credible deterrence of aggression. These external environmental factors describe a few considerations to which PACOM must adapt. Internal organizational factors will be discussed next.

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[163] Mike Edwards, "Hong Kong," *National Geographic*, March 1997, 38.

[164] Winston Lord, "Taiwan Policy Review" *The DISAM Journal of International Security Assistance Management*, Volume 17(2), Winter, 1994-95, 38-40.

[165] John M. Shalikashvili. The Chairman, Joint Chiefs of Staff will be referred to as the Chairman throughout the remainder of this manuscript.

[166] Richard C. Macke, "A Commander in Chief's Look at East Asia," *Joint Force Quarterly*, Spring 1995, 9.

Internal Organizational Structures

The preceding discussion describes some of the external environmental factors affecting PACOM and CFC decision-making. The AOR's evolving and complex nature requires changes in internal organizational structures used to conduct DBS. These internal factors will be discussed next.

The findings show a mechanistic structure used to meet PACOM's needs in an uncertain and changing environment. Because of the importance of CFC in PACOM's AOR, data on both commands were gathered and analyzed. CFC is a sub-unified command during peacetime. During war, CINC/CFC becomes the supported commander and PACOM is the supporting command. CFC's and PACOM's approaches to implementing DBS are different and will be described fully in the next several sections. Figure 6 provides a summary of internal processes used in these commands. The next section provides a discussion on how these two commands accomplish DBS, then an assessment of these processes using the contingency framework is presented.

FIGURE 6 - U.S. PACIFIC COMMAND MECHANISTIC ORGANIZATIONAL STRUCTURES BY FUNCTION

Operational Synchronization Processes in Use

Command	Current Operations	Short Range Planning	Mid Range Planning	Long Range Planning	CINC Com-ponent Structure	Integra-tion Working Groups
PACOM	✓	✓	✓	✓	S + F	✓
CFC Korea	✓	✓	✓	✓	S + F	✓

S = Service F = Functional ✓ = Processes in place

PACOM Uses Three JTFs

PACOM organizes and trains three standing JTFs to conduct its warfighting effort outside of Korea. One JTF is staffed by Seventh Fleet based in Yokosuka, Japan and is designed for maritime and littoral operations. The second JTF is manned by First Corps U.S. Army based in the Fort Lewis, Washington and is designed for land operations. The third JTF is staffed by First Marine Expeditionary Force based near San Diego, California and is designed for amphibious and land operations.[167] The three JTFs each use dual-hatted service and functional component commanders for contingency operations, and implement DBS using similar internal structures, processes, and functions.

PACOM uses two distinct echelons of leadership for contingencies within the AOR. The CINC is responsible for the entire AOR and in wartime is focused on developing theater

[167] U.S. Pacific Command, Excerpts from *The Contingency Joint Task Force in USCINCPAC*, USCINCPAC Instruction 3120.26E (Pearl Harbor, HI: Headquarters U.S. Pacific Command, 20 January 1993) in "The Contingency Joint Task Force in USCINCPAC" (Newport, RI: U.S. Naval War College Operations Department, n.d., n.p.).

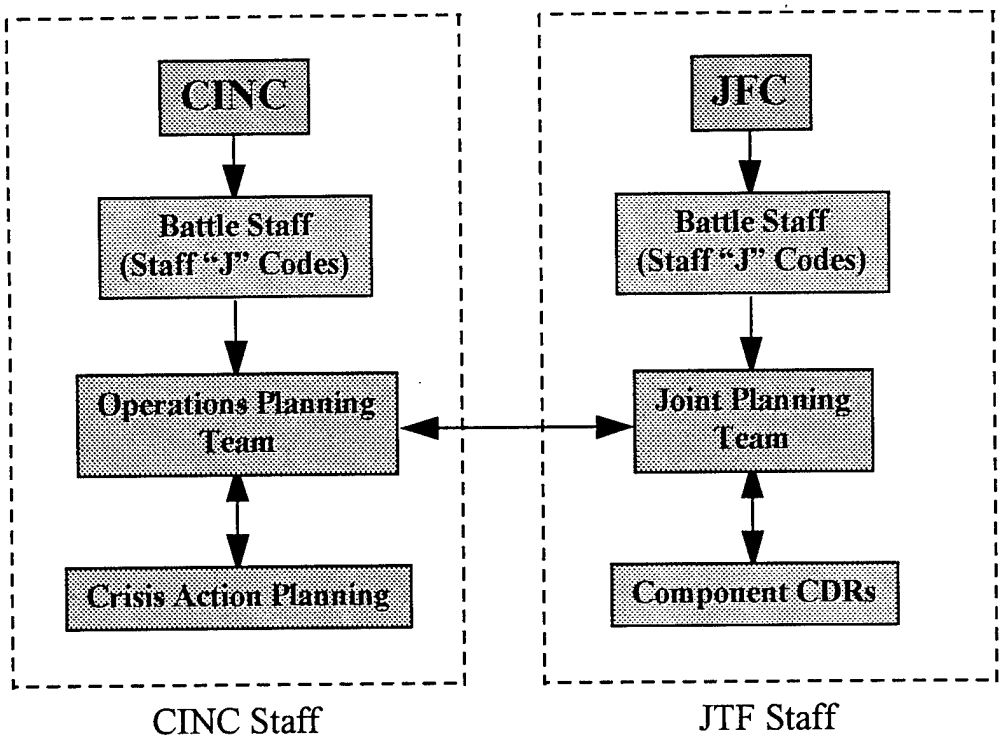
strategy. The JFC's warfighting role is to convert the CINC's theater strategic guidance into operational and tactical objectives and tasks to accomplish the CINC's intent.

PACOM has a deployable joint task force augmentation cell (DJTFAC) to "...provide the CJTF [JFC] with a joint staff planning capability not normally available to a uni-service command."[168] PACOM also uses two working groups to exchange information between the CINC and JTF staffs. The information exchanges are intended to provide real-time combat inputs across both staffs. The CINC's mid-range working group is called the "operational planning team." This team interacts with the JFC's mid-range planning team called the "joint planning team."[169] These functions will be described more fully later. Figure 7 depicts the arrangement of these working groups. The DJTFAC augments the JTF's joint planning team.

[168] Ibid.

[169] Interview, 1997, track sheet #200.

FIGURE 7 - U.S. PACIFIC COMMAND ORGANIZATIONAL STRUCTURE



The joint planning team is composed of members from each JTF staff code. This cross-functional representation helps to fully interpret CINC guidance, and create comprehensive DBS planning and execution. PACOM does not mandate using service or functional components, specific boards, or agencies within its JTFs.[170] However, much imitation occurs across all three JTFs. For example, each JTF uses functional commanders to execute the deep battlespace plan. Additionally, doctrinally-based structures are used in each JTF, such as joint targeting boards. Again, the CINC does not mandate how its JTFs are organized. The CINC is concerned that his theater strategy is implemented effectively.

[170] Ibid.

Deep Operations Processes

Regarding deep operations, PACOM expects DBS planning to occur within the JTF. Table 9 lists the DBS processes used within PACOM's JTFs.

Table 9: U.S. Pacific Command Deep Operations Processes
Operations Planning Team (OPT) Joint Planning Team (JPT) Joint Force Air Component Commander JFACC Combat Plans Division - Air Strategy Cell, Plans Cell, ATO Production Battlefield Coordination Element and Detachment

At the PACOM level, the operations planning team's job is to analyze JTF execution and adjust the JFC's mid-range planning. The adjusted information is provided to the CINC's battle staff to ensure theater strategy is accomplished.[171] This team acts as an mid-level working group providing an inside view of JTF operations to the CINC staff. This connection occurs through integrative functions between the operational planning team and the JFC's joint planning team. The cross-functional representation of the operations planning team makes it well-suited for advising the CINC and submitting strategy recommendations.

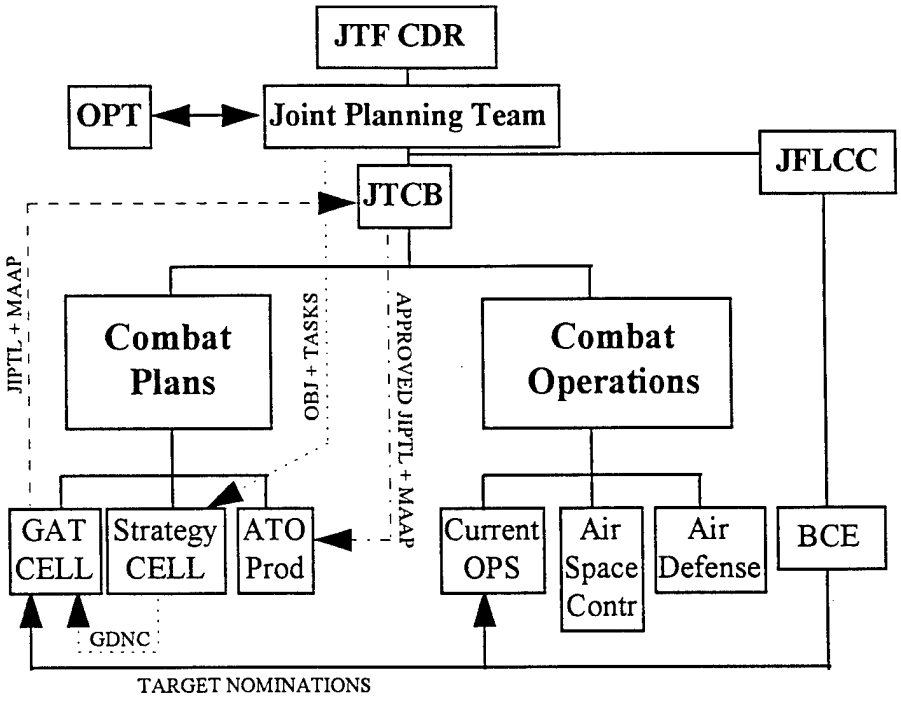
At the JTF level, the joint planning team also uses a cross-functional representation to convert the CINC's strategy and guidance into specific missions, objectives, and tasks. This team's time horizon is two to seven days into the future. The targeting function, called the joint targeting coordination board (JTCB), uses joint planning team objectives and tasks to create a deep operations plan and air tasking order. The targeting function does this by

[171] Ibid.

reviewing and approving a daily joint integrated prioritized target list (JIPTL). Additionally, the joint targeting coordination board recommends mission apportionment to the JFC.[172]

Within each JTF, the JFACC's combat plans division converts the CINC's strategy into deep battle operational tasks--just as the joint planning team does. Although redundant, this specific deep battlespace connection between strategy and operational tasks helps focus all warfighters on creating an executable plan. The three JTFs use the component structure shown in Figure 8 below. PACOM relies upon *Naval Warfighting Doctrine 3-56.1* for its processes and functions to implement DBS.[173]

FIGURE 8 - PACOM DEEP BATTLE ORGANIZATION[174]



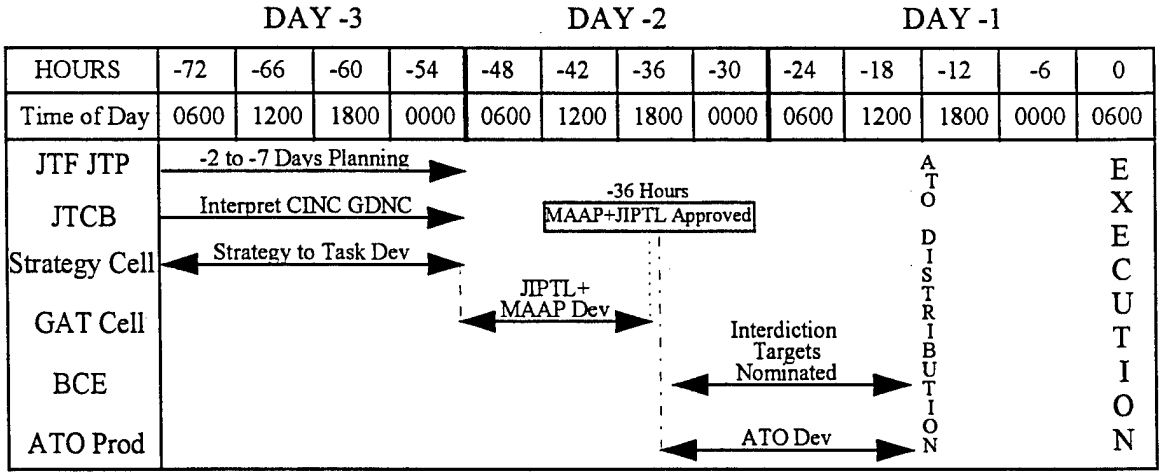
[172] *NWP 3-56.1*, A-5.

[173] Interview, 1997, track sheet #200.

[174] Adapted from *NWP 3-56.1*, A-14.

As shown in Figure 8, the strategy cell takes the joint planning team's objectives and tasks, and modifies them into guidance to develop a master air attack plan (MAAP) 48 hours into the future.[175] The guidance, apportionment and targeting (GAT) cell uses the strategy cell's guidance and the master air attack plan to develop a daily joint integrated prioritized target list. Creating this target list occurs with target nominations from the JTF staff and each component. The guidance, apportionment and targeting cell also builds a proposed prioritized task list to integrate DBS activities. This planning occurs 36 to 48 hours prior to execution. Once approved by the joint targeting coordination board, the joint integrated prioritized target list and master air attack plan are converted into an air tasking order (ATO) by the ATO production cell 12 to 36 hours into the future. The ATO is distributed 12 hours before execution and the JFACC's current operations cell executes it. See Figure 9 for a view of PACOM's planning timeline and functions.

FIGURE 9 - PACOM DEEP OPERATIONS TIMELINE BY FUNCTIONS



[175] *NWP 3-56.1*, B-5.

Various working groups support the DBS process. The battlefield coordination element (BCE) is one specialized working group linking the JFLCC with the joint targeting coordination board. The battlefield coordination element is responsible for nominating ground commander targets 12 to 36 hours prior to execution, assuring integrated ground and air operations, and providing liaison officers to all subdivisions in combat plans.[176]

In short, PACOM's deep battle processes are modeled after joint and service doctrine, but show adaptations to cope with uncertainty in the AOR. The JTF method of warfighting has only been used in operations other than war to date. Major warfare which is anticipated in PACOM's Korean theater is discussed next.

CFC's Command Relationships

CFC is organized differently than PACOM. CFC uses functional and service component commands with supporting boards, agencies and working groups. Eighth Army is the Army service component that also serves as the U.S. part of the Ground Component Command (GCC). Similarly, Seventh Air Force is a service component whose commanding general also serves as the Commander, Air Component Command (CACC). The Seventh Fleet Commander acts as the Commander, Naval Component Command (CNCC) and Third Marine Expeditionary Force, based in Okinawa, provides Marine Corps air and ground forces. The special operations forces (SOF) also have their own functional component which is commanded by a Korean three star general officer. These ground, air, naval, and SOF functional commanders are different from the JFMCC, JFACC and the JFLCC which are

[176] Interview, 1997, track sheet #200.

introduced in the next section on U.S. Central Command.[177] In general, CFC's component structure is different because, although always in place, it does not use the structure in daily operations. For example, the air component's full time, joint staff is composed of only six officers located at Osan Air Base.[178]

CFC's Decentralized Authority

Extensive experience is shown in CFC's formalized command relationships, including division of battlespace authority and responsibility as shown in Figure 10.

FIGURE 10 - CFC BATTLEFIELD ARRANGEMENT BY FUNCTION AND COMMAND POSITION[179]

Authority & Responsibility	FEBA to FSCL	FSCL to DBSL	DBSL and Beyond	Amphibious Objective Area
Supported Commander	GCC	GCC	ACC	CATF/CLF
Controlling Authority	GCC	N/A	ACC	CATF/CLF
Coordinating Authority	N/A	ACC*	N/A	N/A
Targeting Responsibility	GCC	ALL	ALL	ALL
Airspace Control Authority	ACC	ACC	ACC	CATF/CLF
Area Air Defense CDR	ACC	ACC	ACC	CATF/CLF

Battlefield Subdivisions

* Once established, the Deep OperationsCoordination Cell (DOCC) conducts theater-level planning and coordination of deep operations.

[177] Interview, 1997, track sheet #320.

[178] Interview, 1997, track sheet #010.

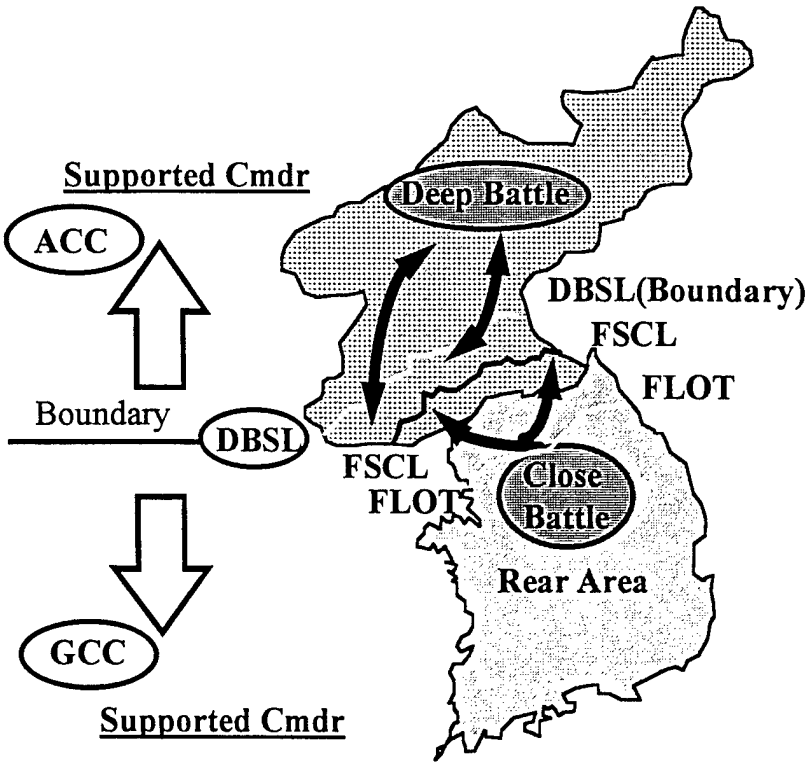
[179] Combined Forces Command, *Deep Operations Primer: Korea,* Update #1 (Seoul, Republic of Korea: Headquarters Combined Forces Command, 1996) 10.

CFC defines close battlespace as the area before the FSCL. Deep battlespace is the area beyond the FSCL.[180] However, CFC adds a boundary called the deep battle synchronization line (DBSL). The DBSL is the GCC's forward boundary and represents the outer most limit of his area of operations. Using the DBSL as a boundary, CFC has further divided deep battlespace responsibilities between the ground and air commanders. Figure 11 shows the separation of responsibilities between the GCC and ACC. The increased battlespace specialization allows for a smooth shift in cross-boundary operations.[181] Thus, GCC is the supported command in the nearest portion of the deep battle and ACC is the supported command beyond the DBSL. The ACC commander is the supported commander for deep operations because he owns most of the interdiction and strategic attack assets.

[180] Ibid., 9.

[181] Interview, 1997, track sheet #110.

FIGURE 11 - Battlefield Division by CFC[182]



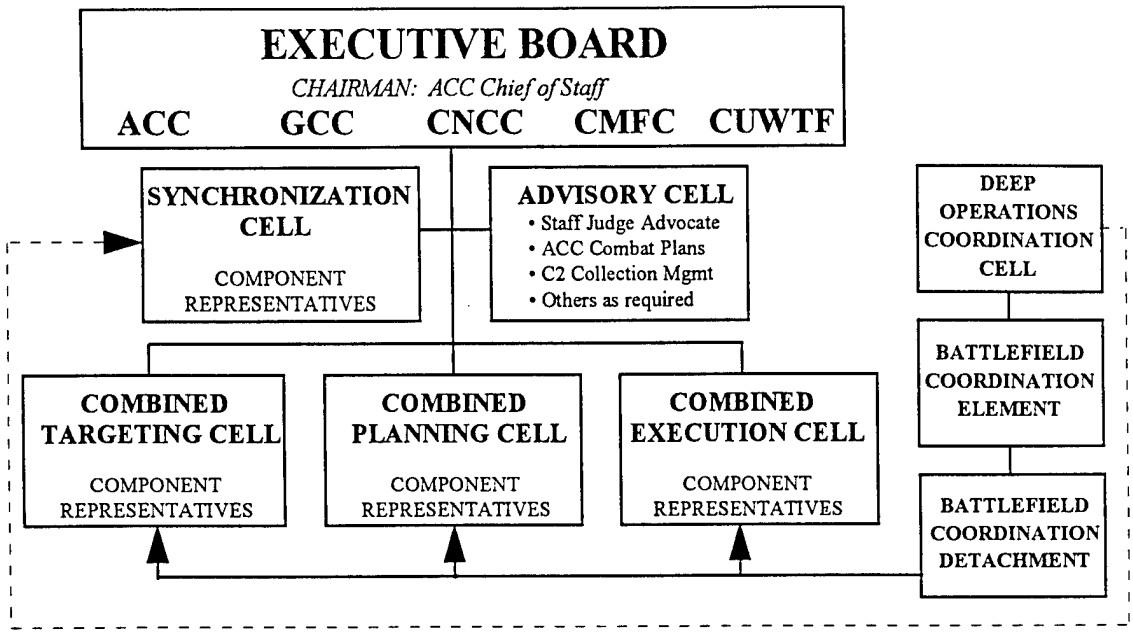
The GCC's deep battle efforts are supported by a battlefield coordination element and a deep operations coordination cell located at Eighth Army Headquarters. These two specialized working groups conduct short, medium, and long range planning to help shape GCC's deep battlespace. The GCC uses a battlefield coordination detachment (BCD) as an input mechanism into the combined targeting board (CTB).[183] The battlefield coordination detachment's input, in the form of ground target nominations, are designed to shape GCC's deep battlespace needs. The combined targeting board "executive board" is an mid-level working group which meets daily during wartime to approve target prioritization and recommend apportionment based on the CINC's guidance. The targeting function has

[182] Interview, 1997, track sheet #010.

[183] Ibid.

evolved into a highly specialized process in Korea. Figure 12 shows the key components of the process.

FIGURE 12 - CFC DEEP BATTLE ORGANIZATION[184]



As shown in Figure 12, the combined targeting board has several "cells" supporting its effort to synchronize deep operations. The synchronization cell is responsible for interpreting the CINC's daily guidance and implementing his strategy by forming objectives, tasks, and measures of effectiveness for other combined targeting board cells. This cell also develops apportionment guidelines based on the CINC's daily guidance. The targeting cell uses output from the synchronization cell to build two single prioritized integrated target lists (SPITLs) composed of offensive counter air (OCA) and interdiction targets.[185] The planning cell takes the executive board-approved SPITLs and the CINC-approved apportionment to create a

[184] *Deep Operations Primer-Korea*, 19.

[185] Interview, 1997, track sheet #010.

daily integrated tasking order. The execution cell monitors the integrated tasking order as it is executed and has the decentralized power to re-assign roles and missions, as required to adapt to real-time battlespace changes.[186]

The use of liaison elements throughout the combined targeting board and in the battlefield coordination detachment improves integration among the various processes. Liaison officers from each component are assigned to the various combined targeting board cells ensuring adequate integration across functions and services. Additionally, each joint staff code is represented in many of the cells.

Finally, the deep operations coordination cell has another specified task highlighted in Figure 12: to act as the "coordinating authority" for joint fires between the FSCL and the DBSL when the function is developed. At the time of this writing, Korea's deep operations coordination cell could not fulfill this function. One interviewee highlighted a lack of experience, and shortages in both C^4I equipment and manning which prevent the deep operations coordination cell from performing this function.[187] Shortfalls in manning and experience were also identified within the battlefield coordination detachment and element.[188]

Synchronization occurs at two levels in CFC's combined targeting board. Operational synchronization occurs in the synchronization cell's conversion of the CINC's daily guidance into operationally sequenced and prioritized tasks, and apportionment guidance. Secondly, it occurs in the combined planning cell where the approved target lists and apportionment are used to create the integrated tasking order.

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[186] Interview, 1997, track sheet #120.

[187] Interview, 1997, track sheet #100.

[188] Ibid.

In summary, CFC incorporates many specialized processes and integrative mechanisms ensuring deep battlespace activities have a unified effort. Long-standing command relationships and delegated responsibilities help to minimize conflicts in DBS. The integrative mechanisms are pivotal in creating an effective DBS plan.

Targeting Boards

PACOM's joint targeting coordination board and CFC's combined targeting board represent formalized structures within each organization. PACOM's joint targeting coordination board is modeled after the structure described in *Naval Warfighting Publication: 3-56.1*. CFC, on the other hand, uses a customized structure with planning elements from the doctrinal "combat plans division," such as the strategy cell (renamed the synchronization cell.[189] CFC's targeting cell performs a similar function to a JTF's guidance, apportionment and targeting cell.

Specialization

Both commands have diverse, specialized departments, working groups, and liaison elements. As the contingency framework describes, mechanistic organizations can adapt to change and uncertainty by increasing specialization within departments. Both PACOM and CFC have adapted their organizational structures to cope with their environment. Examples of the many specialized departments include PACOM's operations and joint planning teams. CFC uses a synchronization cell, a battlefield coordination working group, and future

[189] *Joint Pub 3-56.1*, IV-9.

coordination working group to focus on specific battlespace pieces. Each command has several mid-level working groups with liaison elements having specific, differentiated functions. Within the specialized departments are working groups performing boundary spanning roles to anticipate future planning requirements based on external environmental considerations. The deep operations coordination cell and synchronization cell in Korea, and the joint planning team and long range planners within PACOM perform these tasks.

In some cases, the mid-level working groups have not fulfilled their charters. The battlefield coordination element and detachment in CFC and the joint planning teams in PACOM's JTFs were identified as problem areas during joint exercises.[190] According to one interviewee, "...there aren't enough living, breathing bodies with adequate experience to perform the battlefield coordination detachment function."[191]

Integrating Roles

Both PACOM and CFC use integrating functions to ensure specialized departments have a common focus and are oriented toward the same operational tasks. Horizontal interaction occurs among many mid-level working groups through people and processes. Interviewees described informal interaction among working groups used to ensure group outputs were relevant given the constantly changing nature of warfare. Network structures were established within CFC's deep battlespace organizational structure. The network structure connected all the deep battlespace functions into an ad hoc working group which

[190]Interview, 1997, track sheet #100 and 200.

[191] Interview, 1997, track sheet #100.

meets daily in war. The network in Korea is composed of air mobility, security, communications, operations, personnel, deception, command and control warfare, targeting, civil engineering, and component representatives.[192] This network is used to respond to planning directives from the CINC ensuring a consolidated, integrated commander's estimate is produced.

Imitating Roles

Within uncertain environments, successful organizations are often imitated by similar organizations.[193] PACOM has shaped some of its processes after CFC. Additionally, as will be shown later, other geographic combatant commands have customized processes for deep battlespace and targeting which were adapted from CFC. The *Deep Operations Primer-Korea* has been used by all of the other commands as a model. U.S. Central Command has drawn significant information from CFC's deep operations as shown in the *Third Army Deep Operations SOP* and the *9th Air Force Standard Operating Procedures* (in development).[194]

Planning and Forecasting

Finally, extensive planning and forecasting occurs within the specialized organizational structures of PACOM and CFC that focus on the future. Each department focuses on a different time horizon. In CFC, the execution cell monitors and adjusts the current plan, the

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[192] Combined Forces Command, "CINC's Synchronization Cell - Focusing on the Deep Battle" (Seoul, Republic of Korea: Headquarters Combined Forces Command, n.d.).

[193] Hall, 1987.

[194] U.S. Department of the Army, *Third U.S. Army/ARCENT Deep Operations SOP* (Fort McPherson, GA: Headquarters Third Army, n.d.)

deep operations coordination cell looks 24 to 48 hours ahead, the combined planning cell looks 37 hours ahead, the synchronization cell works 65 to 96 hours in the future, the battle coordination working group focuses on staying at least seven days ahead, and the future coordination working group looks at the next phase of the campaign.[195] CFC's extensive planning and forecasting mechanisms are tailored to its uncertain environment.

PACOM is not as departmentalized as CFC; however, it does perform future planning. Each echelon below the CINC looks at progressively shorter time periods. PACOM focuses on the next phase of the campaign, the JTF focuses 72 hours in the future and concentrates on air tasking order development. The CINC staff develops and modifies the strategy through long range planning which is passed to the battle staff and JTF.

Summary

In summary, PACOM and CFC operate in uncertain environments. Throughout PACOM's AOR there are hostile political, economic, and military players who challenge the command. Both PACOM and CFC are organized differently, but they have some similarities. Both use mechanistic structures with varying levels of decentralized decision-making power. Specialization, departmentalization, and integration were common to both commands; formal and informal linkages were observed in each organization. Furthermore, imitation was observed within PACOM's JTFs and between CFC and other geographic combatant commands. Finally, extensive planning and forecasting measures are established.

[195] Interview, 1997, track sheet #010.

U.S. Central Command

The U.S. Central Command (CENTCOM) AOR is comprised of the Middle East, southwest Asia, eastern Africa, and Pakistan. It has both continental and maritime elements. The region is complex because of its volatile politics and strong orthodox religion, coupled with its international economic status based on large oil production. Adding to the complexity, several major wars and contingencies since PACOM's Korean War have been fought in the CENTCOM AOR, which complicates today's regional balance. Moreover, the U.S. national security environment places CENTCOM as the warfighters for one of the major theater wars.[196] As a result, CENTCOM has evolved in its traditional warfighting role with strong focus on Iraq.

Environmental Factors

Key external environmental factors shape the region and impact CENTCOM's level of uncertainty. Table 10 highlights a few of the most significant environmental factors.

Table 10:

External Environmental Factors Impacting U.S. Central Command

Military Threats
Economic Conditions
Politics

Military Challenges. Deterring aggression, protecting lines of communication, ensuring free movement of strategic resources, and stabilizing the region are CENTCOM's charters. There

[196] William J. Perry, *Proliferation: Threatened Response* (Washington, D.C.: The Pentagon, 1996) 11.

are many military threats to stability in the region. For example, renewed Iraqi aggression in pursuit of regional hegemony is a threat to Arabian Gulf oil production. Additionally, Iranian expanding and improving military capability threatens stability.[197] Most recently, Iranian acquisition of the Chinese C-802 coastal missile defense battery now threatens ships transiting the Arabian Gulf and Strait of Hormuz.[198] Furthermore, recurring hostility on the eastern part of the African continent requires U.N. and U.S. military intervention. The potential for future intervention in this region lingers as conditions fail to improve and threaten regional stability.

Economic Conditions. Economic power vaulted this region into its high international status. Oil production is a strategic resource to many countries around the world, therefore this AOR remains in the political limelight. U.S. dependence on Middle East produced crude oil impacts CENTCOM substantially. Operation Desert Storm was as much about oil production as it was about Kuwait's sovereignty. However, the command has little influence over the oil producing states except through U.S. Department of State actions. The importance of oil as a strategic resource to the U.S. continues to force CENTCOM planners to consider every possible contingency in the theater. Protecting the small, lightly defended oil producing states is one of the command's primary concerns.

Politics. Economic pressures force CENTCOM to play a political as well as warfighting role. This region, unlike any other in the world, has a precarious intertwining of religion and

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[197] Kenneth R. Timmerman, "The New World Arms Market," *Wall Street Journal*, 3 April 1997, 18.

[198] Timmerman, 3 April 1997, 1.

politics. This results in a delicate balance between staying engaged in Arab politics and preventing anti-U.S. attitudes. For example, recently the U.S. sold F-16 aircraft to the United Arab Emirates (UAE) and Bahrain; a similar deal with Saudi Arabia was rejected. These weapon sales have rippling effects throughout the AOR. An arms race is emerging among the Arabian Gulf states because of the ease in purchasing high-tech weapon systems from Russia and China. In a recent international defense exhibition, 80 of the 500 exhibits were Russian arms contractors.[199] According to Timmerman, Russia is lobbying hard to sell its SA-12 missile system (similar to our Patriot missile system) to the UAE. A whole host of warfighting issues surface with such a scenario--like how to integrate SA-12s into a coalition theater missile defense network and how to distinguish friendly SA-12s from enemy ones during a conflict. CENTCOM plays an important role in this complex balance because of its continuous regional presence with ships, aircraft, and ground forces.

In summary, the combination of this medium-to-high-threat region coupled with elevated uncertainty characterizes this AOR as a quadrant IV, dynamic-complex region in the contingency framework. The importance of CENTCOM's AOR today is growing in importance and complexity.

Internal Organizational Structures

The last section illustrates some of the external environmental factors impacting CENTCOM's decision-making processes. The AOR's changing nature forced CENTCOM to adapt its internal structure to cope. CENTCOM's organizational structure

[199] John Lancaster, "Russian Labels at Discount Prices," *Washington Post*, 4 April 1997, 16.

was completely changed since Operation Desert Storm. According to one interviewee, "...the way we fought in Desert Storm is nothing like we'd fight today."[200] CENTCOM's current structure uses a broad range of planning processes spanning across the time horizon as shown in Figure 13 below.

FIGURE 13 - U.S. CENTCOM MECHANISTIC ORGANIZATIONAL STRUCTURES AND INTERACTIONS

Operational Synchronization Processes in Use

Command	Current Operations	Short Range Planning	Mid Range Planning	Long Range Planning	CINC Component Structure	Integration Working Groups
CENTCOM	✓	✓	✓	✓	S + F	✓

S = Service F = Functional ✓ = Processes in place

Each of these planning processes and functions are described next. Additionally, interaction and integration considerations will be discussed. The findings show that CENTCOM uses mechanistic structures to operate in its uncertain and changing environment. Table 11 shows a summary of the major subsections which follow.

Table 11: U.S. Central Command Internal Organizational Structures
Use of Functional Component Commanders Functional Arrangement has Impacted the Battlespace Internal Organization Shapes Deep Battle Procedures Increasing Range of Deep Attack Weapons Influences the Deep Battle

[200] Interview, 1997, track sheet #330.

CENTCOM Uses Only Functional Commanders

The CINC's interest in doctrine led to using functional warfighting components, rather than service components for daily operations.[201] The functional component commands include the JFMCC, the JFACC, the JFLCC, the Joint Special Operations Task Force Commander, and the Joint Psychological Operations Task Force Commander. These five component commanders are responsible for their individual functions throughout the battlespace during war and peace. The Ninth Air Force Commander is the standing JFACC, the CINC is the JFLCC, the Third Army Commander is the Deputy JFLCC (DJFLCC), and the Commander, U.S. Naval Forces Central Command is the JFMCC.

The CINC retains the official title of the JFLCC to satisfy coalition constraints. Regional political structures demand that coalition ground forces work directly for the CINC, rather than a subordinate.[202] However, the CINC delegates control of the ground battle to the DJFLCC. Additionally, the DJFLCC is the senior U.S. ground force commander, and has tactical command of the Marine amphibious and maritime pre-positioned units.[203] CENTCOM is organized this way to satisfy requirements of the Omnibus Agreement which calls for the Marine Air Ground Task Force (MAGTF) to fight as a single unit during operations. Army and Marine command relations evolved from lessons learned during Operation Desert Storm. In CENTCOM, amphibious operations may represent a small portion of the total campaign; therefore, Marine units needed standardized procedures to integrate into the close battle with Army units. The integration of First Marine Expeditionary

[201] Interview, 1997, track sheet #300.

[202] Ibid.

[203] Interview, 1997, track sheet #320.

Force into the close battle combines Marine aircraft for close air support with Marine ground forces. Unfortunately, integrating Marine air into the deep operations plan has been problematic when Marine ground forces are fighting.[204]

Functional Arrangements Impact the Battlespace

The functional command emphasis improves interaction within CENTCOM by segmenting battlespace responsibilities among commanders. Like in CFC, CENTCOM uses supporting and supported command relationships to control the different areas of operations. In CENTCOM, the DJFLCC is the supported commander in a land area of operations, the JFMCC is the supported commander in the maritime portion of the theater, and the JFACC is supported commander in the area of operations which is forward of the DJFLCC's area of operations.[205] This command structure requires the DJFLCC to rely on other component commanders for support in executing the ground scheme of maneuver. For example, the JFACC provides close air support and interdiction sorties, and the JFMCC provides cruise missile strikes, excess aircraft sorties, and naval surface fires.

The DJFLCC is the supported commander beyond the fire support coordination line out to the edge of his area of operations.[206] Therefore, he has added responsibility for this portion of the battlespace. The CINC directed that all attacks beyond the fire support

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[204] Interview, 1997, track sheet #330.

[205] Interview, 1997, track sheet #310.

[206] U.S. Central Command, USCENTCOM Instruction R 525-1, *CINC's Warfighting Instructions Vol 1, Operations Standing Operating Procedures* (MacDill AFB, FL: Headquarters U.S. Central Command, 21 August 1996) III-1.

coordination line be coordinated with the other component commanders to avoid fratricide.[207] For example, an ATACMS fire beyond the fire support coordination line can fly through airspace controlled by the JFACC. The airspace between the fire support coordination line and the edge of the DJFLCC's area of operations has some of the most dense air traffic. CENTCOM's emphasis is on deconfliction--making it difficult to create sequenced and prioritized tasks among components.

CENTCOM is wrestling with these issues: command and control; intelligence, surveillance, and reconnaissance; and, cross-component integration in its exercise program. Integration improvements among components, boards, and departments has occurred during Exercise Roving Sands 95.[208] Additionally, improved integration of deep battlespace activities occurs within newly created specialized working groups which share information, plans and battlespace concerns. These specialized groups are discussed next.

CENTCOM's DBS Procedures

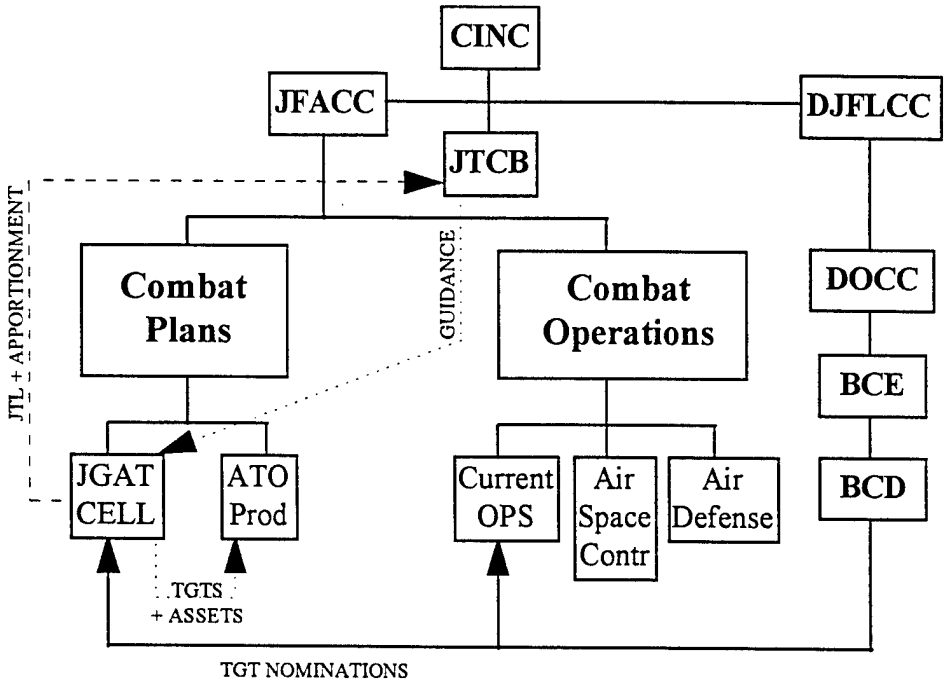
Like PACOM and CFC, CENTCOM uses various processes to create a deep operations plan. Executing the deep operations plan, in particular, has been improved with integrated planning and coordinating within JFACC organizational units and a Third Army mid-range planning coordination cell. Lessons learned from Operation Desert Storm and the JCS exercise program were used to streamline operations. Figure 14 depicts CENTCOM's targeting process. As in PACOM and CFC, DBS occurs among various processes and

[207] Ibid.

[208] Interview, 1997, track sheet #310.

functions with varying time horizons ranging from the current battle through about 7 days into the future. The formal two tier process is described in the *USCINCCENT Warfighting Instruction.*[209] This process will be described briefly next.

FIGURE 14 - CENTCOM DEEP BATTLE ORGANIZATION



The targeting board, called a joint targeting coordination board in CENTCOM "...serves as the principle forum for USCINCCENT to provide his targeting guidance to the JFACC and other component and functional commanders."[210] The joint targeting coordination board uses CINC guidance for 72 to 96 hours into the future in creating its deep operations plan. A mid-range planning function, called the joint guidance, apportionment and targeting cell (JGATC) prioritizes target nominations from each component based on CINC

[209] *USCENTCOM Instruction R 525-1.*

[210] Ibid., II-3.

guidance. In CFC, this function was performed by a more specialized group called the combined targeting cell. The joint targeting coordination board approves a prioritized joint target list (JTL) developed by the joint guidance, apportionment and targeting cell for operations 72 hours into the future. The joint guidance, apportionment and targeting cell then matches prioritized targets from the JTL to available assets.[211] In CFC, this function is performed by another specialized group called the combined planning cell. The DJFLCC also has a target nomination process through his deep operations coordination cell. The deep operations coordination cell receives candidate target nominations from the various ground forces commanders. These ground target nominations are for interdiction attacks 72 or more hours into the future. Ground force commanders' nominations are integrated into a prioritized target list in the target development section of the deep operations coordination cell. The deep operations coordination cell prioritized target list with associated rationale is eventually submitted to the battlefield coordination detachment who represents the DJFLCC in the joint targeting coordination board process. The battlefield coordination detachment enters Army mobile and fixed target nominations into the joint guidance, apportionment and targeting cell process for integration with other component target nominations.[212]

Operational synchronization of the deep battlespace activities occurs in the joint targeting coordination board where CINC guidance is converted into target priorities, through cross-component dialogue.[213] However, synchronization also occurs within the joint guidance, apportionment and targeting cell where approved target priorities are matched to

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[211] Ibid., IV-6.

[212] Interview, 1997, track sheet #320.

[213] Interview, 1997, track sheet #330.

attack assets. Recently, an observer for a CENTCOM exercise provided conflicting data about the efficacy of this DBS process.[214] The interviewee said that the way CENTCOM accomplishes its DBS is totally different than the way CENTCOM writes about its deep operations planning process. The same interviewee described the importance of staff interaction to truly integrate deep battlespace activities. The interviewee said that this interaction was missing. Additionally, other interviewees said they believe the process has the necessary pieces, but lacks the experience required for executing the process.[215]

Long Range Attack Weapons Influence Deep Battlespace

The ever-increasing range of deep attack weapons is forcing changes in CENTCOM's organization. ATACMS, tomahawk land attack missiles (TLAMs), Apache helicopters, and a host of new precision guided munitions are causing CENTCOM to rethink its organizational structure. The DJFLCC is pushing for a wider space between the forward line of troops and the fire support coordination line so that he can independently shape his area of operations.[216] The battle management section of the deep operations coordination cell is responsible for coordinating short and medium range deep attack operations with other components through the battlefield coordination detachment.[217] Mid-range deep attacks beyond 48 hours still must be nominated through the targeting process; however, the battle management section has the

[214] Interview, 1997, track sheet #770.

[215] Interview, 1997, track sheet #310; Interview, 1997, track sheet #340.

[216] U.S. Department of the Army and Department of the Air Force, *Joint Message* to all CINCs and Service Chiefs, DTG: 172201z Dec 96, Subject: Joint Agreement From Army-Air Force Warfighter Conference.

[217] *Third U.S. Army/ARCENT Deep Operations SOP*, 5-2.

necessary command and control equipment for quick reaction deep attacks within 48 hours. Additionally, this deep operations coordination cell section can direct deep attacks that are not in the current air tasking order, if necessary. Methods to prevent fratricide during these quick fires only involve the requirement for the DJFLCC to coordinate with other components.

Mechanistic Component Structure and Command Relationships

Command relationships have been streamlined by using the supported-supporting relationships mandated by the CINC. These command relations improve interaction and coordination among the components despite the mechanistic structure because a single commander is responsible for ensuring unity of effort within each area of operation. Segmenting the battlespace into geographic areas, with a single commander in charge of each area, allows unity of effort through unity of command. Unity of command allows centralized planning and control of deep battlespace activities. DBS occurs at the command level where operational art is used. DBS also occurs in the interaction among the various major working groups.

Specialization

Various departments have been created such as the joint guidance, apportionment and targeting cell, joint targeting coordination board, battlefield coordination detachment, and deep operations coordination cell. These functions have already been described. While the degree of specialized departments is not as extensive as in CFC, CENTCOM's organizational structure seems to be working. Experience levels are increasing as exercises and real-world

tests of CENTCOM's capabilities continue. For example, specialization within the deep operations coordination cell has improved interacting, sequencing, prioritizing, and ultimately synchronizing ground actions with deep attacks. Additionally, a number of specialized working groups conduct boundary spanning roles. For example, the deep operations coordination cell's battle management section evaluates the battlespace environment beyond the JFLCC's forward boundary for future operations. It is also responsible for directing ATACMS fires and coordinating with other components.[218] In short, CENTCOM adapted its functional command structure by using interactive, specialized departments to cope with environment uncertainty.

Integrating Roles

In the early stages of modification, working groups were formed but their individual outputs were not integrated because of stovepiped information within specialized departments.[219] For example, during Exercise Joint Project Optic Cobra 93, F-15E aircraft and Apache helicopters attacked the same target within five minutes of each other.[220] This incident highlighted the need to avoid stovepiped planning and to improve cross-component integration into a deep battlespace plan. It also highlighted the risk of fratricide and the impact of redundant attacks on overall operations which could have supported other efforts in battlespace. These issues remain key concerns in CENTCOM.

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[218] *Third U.S. Army/ARCENT Deep Operations SOP*, 3-2.

[219] Interview, 1997, track sheet #310.

[220] Ibid.

Imitation

The deep operations coordination cell concept was originally created in CFC as a solution to a lesson learned during Exercise Ulchi Focus Lens 93.[221] In CENTCOM, a deep operations coordination cell is now used within Third Army to coordinate and integrate deep battlespace activities which impact the DJFLCC. Additionally, the battlefield coordination detachment in CENTCOM was adopted from CFC. Furthermore, the idea that the DJFLCC is the supported commander throughout his area of operations, to include the battlespace between the fire support coordination line and the forward boundary also stems from CFC's writing on the deep battle synchronization line.[222]

Planning and Forecasting

Finally, CENTCOM is conducting much planning and forecasting. One interviewee described the concentrated effort put into OPLAN and concept plan development. CENTCOM's OPLAN incorporates normally behind-the-scene deep battlespace actions such as deception, psychological operations, command and control warfare, and SOF into phase plans.[223] Across the component level, increased planning cooperation has occurred between the deep operations coordination cell and the joint guidance, apportionment and targeting cell. This emphasis on cross-functional coordinated planning resulted from lessons learned during Exercise Internal Look 94 where several breakdowns in synchronized activities occurred

[221] Interview, 1997, track sheet #320.

[222] Interview, 1997, track sheet #340.

[223] Ibid.

during the exercise.[224]

Summary

CENTCOM operates in a quadrant IV, dynamic-complex external environment. The command modified its organization in the early 1990s to improve its ability to cope with uncertainty. CENTCOM's mechanistic structure works well; however, data were collected describing interaction problems among the various structures in the past. Moreover, CENTCOM has successfully imitated many of CFC's organizational processes, which Hall says is a natural organizational coping mechanism to uncertainty.[225]

U.S. European Command

The U.S. European Command (EUCOM) AOR is comprised of the European continent and Scandinavian countries extending to the eastern Mediterranean, Black Sea, and south which also includes the African continent. EUCOM's AOR is the second largest, with PACOM being the largest. With a broad variety of politics, religion, and economics, EUCOM's external environment is filled with complexity. Adding to the complexity is the disintegration of the Soviet Union and survival of the fledging Commonwealth of Independent States (CIS). Additionally, peacekeeping efforts, humanitarian assistance, and Bosnian operations continue to challenge the command. Operation Deny Flight in Bosnia has existed for over three years. Furthermore, low level conflicts, human rights violations, and large-scale famine and disease have persisted on the African continent throughout the last five years. A

[224] Interview, 1997, track sheet #310.

[225] Hall, 1987.

closer look at the AOR is provided next.

Environmental Factors

The EUCOM AOR is the historic location of a majority of large offensive military operations. For example, Fabius Maximus of Rome defeated Hannibal nearly 3000 years ago.[226] Napoleon Bonaparte and Helmuth von Moltke maneuvered grand armies over the European continent in the 19th century.[227] More recently, World War I, World War II, the Egyptian-Israeli wars of 1967 and 1973, and the collapse of Yugoslavia all occurred within EUCOM's AOR. Today, this command has no shortage of aggressive countries.

The Soviet Union represented a lion's share of EUCOM's threat until 1990. Since the collapse of the Soviet Union, new challenges have emerged centering around the North American Treaty Organization (NATO). Several of the former Warsaw Pact countries desire to enter NATO. Because NATO was formed after World War II to demonstrate U.S. support for European allies against Soviet aggression, an enlarged NATO could threaten the CIS.[228] Today, Operation Deny Flight and U.N. peace operations continue in the former Republic of Yugoslavia. Additionally, the impact of poor controls over nuclear weapons is an incredible uncertainty which EUCOM must consider. The U.S. policy of non-proliferation of weapons of mass destruction is pressured constantly.[229] Moreover, the conventional forces agreement

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[226] Alberto Coll, "Fabian Strategies," Address to Strategy and Policy Course, U.S. Naval War College, 2 September 1996.

[227] Hajo Holborn, *The Prussian-German School: Moltke and the Rise of the General Staff*, in Peter Paret, ed., *Makers of Modern Strategy: Machiavelli to the Nuclear Age* (Princeton, NJ: Princeton University Press, 1986) 306.

[228] Honorable Robert E. Hunter, U.S. Ambassador to NATO, "NATO Enlargement: NATO and U.S. Policy Views," *Retired Officers' Association National Security Report*, April 1997, 25.

[229] William J. Perry, "The Chemical Weapons Convention," testimony before the U.S. Senate Committee on Foreign Relations, *Retired Officers' Association National Security Report*, February 1997, 2.

called for removing various conventional weapon systems from continental Europe. This gradual drawdown in overall military power required EUCOM to adapt its organizational and force structure to deal with mission challenges.

Additionally, new problems have emerged on the African continent: famine and starvation. Several countries throughout Africa threaten implosion with skyrocketing inflation, failed economies, and political corruption. Deterioration of western African countries presents a number of challenges for EUCOM. For example, non-combatant evacuation, humanitarian relief, and peace operations occupy much of EUCOM's warfighting focus. Most recently, the Democratic Republic of the Congo is center stage as a million starving Rwandan Hutu refugees are trapped in its eastern hills.[230] These refugees have found themselves between Zairian rebels and government forces fighting a civil war.[231]

Regional economic factors impact EUCOM as well. Military weapon sales from the CIS to the world arms buyers brings hard currency into the Commonwealth. These sales threaten stability throughout the world. Additionally, weak African economies particularly concern EUCOM. Most recently, Sierra Leone's economy has failed which will rely upon U.S. or U.N. support to rebuild.[232]

On-going peace operations in Bosnia force EUCOM to integrate political considerations into military operations. U.N. forces have responded to political outcries to prevent widespread "ethnic cleansing" in the Bosnia area. Military-based solutions are

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[230] Formerly the country of Zaire.

[231] Lynne Duke, "Zaire's Complex Conflict Keeps Refugees in Peril," *Washington Post*, 2 April 1997, 13.

[232] Reuter's News Service, "Sierra Leone Troops Arrest Ex-Ministers," *Washington Post*, May 27, 1997, 16.

harnessed by political realities related to sovereignty, unclear policy ends, and more.[233] Moreover, peace operations in Bosnia continuously pressure EUCOM to adapt its warfighting efforts to foster a coalition-based solution, rather than a U.S.-based solution.

In short, EUCOM operates in a quadrant IV, dynamic-complex environment. With the Soviet Union gone as a major regional threat, the odds of large scale conventional warfare are low. Despite this lack of a major threat within the AOR, EUCOM uses internal processes and functions to develop a deep operations plan as a contingency response to AOR threats. This deep operations focus is important because EUCOM has a huge land mass for which it is responsible.

Internal Organizational Structures

Since 1990, EUCOM has faced a large force drawdown. These cuts reduced U.S. military presence from 311,000 to 110,000 personnel by 1996.[234] Unfortunately, despite the drawdown and disintegration of the Soviet Union as a major power, there has been "...no reduction in their missions."[235] The combination of a force drawdown and high mission tasking has forced EUCOM to modify its internal organizational structure. Mission changes have also occurred. EUCOM used to focus on major warfare against Communist countries. Today, its focus is on military operations other than war which maintains stability and

[233] Congressman Floyd Spence, "U.S. Troops in Bosnia: Caught in the Quagmire," *Retired Officers' Association National Security Report*, March 1997, 21.

[234] U.S. General Accounting Office, T-NSIAD-93-3, *Testimony on the Drawdown of U.S. Based Forces in Europe.* Testimony to Readiness Subcommittee of the House Arm Services Committee by Joseph E. Kelley (Washington, D.C.: Government Printing Office, 27 April 1993) 2.

[235] Ibid., 1.

prevents major conflicts from arising.

Like PACOM, EUCOM now relies on JTFs to conduct its warfighting missions. These JTFs are staffed by Fifth Corps, the Southern European Task Force (SETF), Third Air Force, 16th Air Force, and Sixth Fleet. Centralized planning of deep battlespace activities occurs on the EUCOM staff, while decentralized planning occurs within the JTFs. Because of their high tasking, EUCOM continues to adapt and modify its warfighting relationships based on past real-world experiences. For example, a Marine-lead JTF conducted a non-combatant evacuation in Liberia and Albania. SETF has conducted a number of humanitarian assistance operations in Africa including, most recently, Zaire; and Sixth Fleet has led JTFs conducting peace enforcement operations in Bosnia.

EUCOM's internal organization has a wide range of planning processes and functions which support deep battle initiatives. Figure 15 identifies key areas used in the deep battlespace planning processes.

FIGURE 15 - EUCOM MECHANISTIC STRUCTURES

Operational Synchronization Processes in Use

Command	Current Operations	Short Range Planning	Mid Range Planning	Long Range Planning	CINC Com-ponent Structure	Integra-tion Working Groups
EUCOM	✓	✓	✓	✓	S + F	*

S = Service
F = Functional

*= JFFC is used to accomplish limited integration
✓= Processes in place

Like PACOM, EUCOM does not mandate the internal structure of its JTFs; however,

nearly all of the JTFs are structured the same except for the SETF which sometimes uses a joint force fires coordinator. SETF also uses a combination of standing Army organizations for manning, such as airborne and artillery units. SETF also uses functional components to handle battlespace issues.

All JTFs use a JFLCC to control the close battle and a JFACC to control coalition-wide deep operations; however, the JFACC and JFLCC are not formally designated supported commanders.[236] The processes and functions used by EUCOM's JTFs are similar to PACOM's JTFs, as previously shown in Figure 8.

The Joint Force Fires Coordinator Is An Integrator

The joint force fires coordinator (JFFC) is a position created recently to ensure all lethal battlespace activities are integrated. In terms of this research construct, the joint force fires coordinator is an integrating function which ensures unity of effort between close and deep battlespaces. Not only does the joint force fires coordinator deconflict joint fires across intra-theater boundaries, but he also integrates some of the other deep battlespace lethal activities such as SOF. Preliminary results about the effectiveness of this position show much redundancy between the JFFC and the JFACC.[237] The joint force fires coordinator is being modified so that it is a staff function under the JTF J-3, rather than implying any command level responsibilities. The processes used by the joint force fires coordinator will be discussed later.

[236] Interview, 1997, track sheet #400.

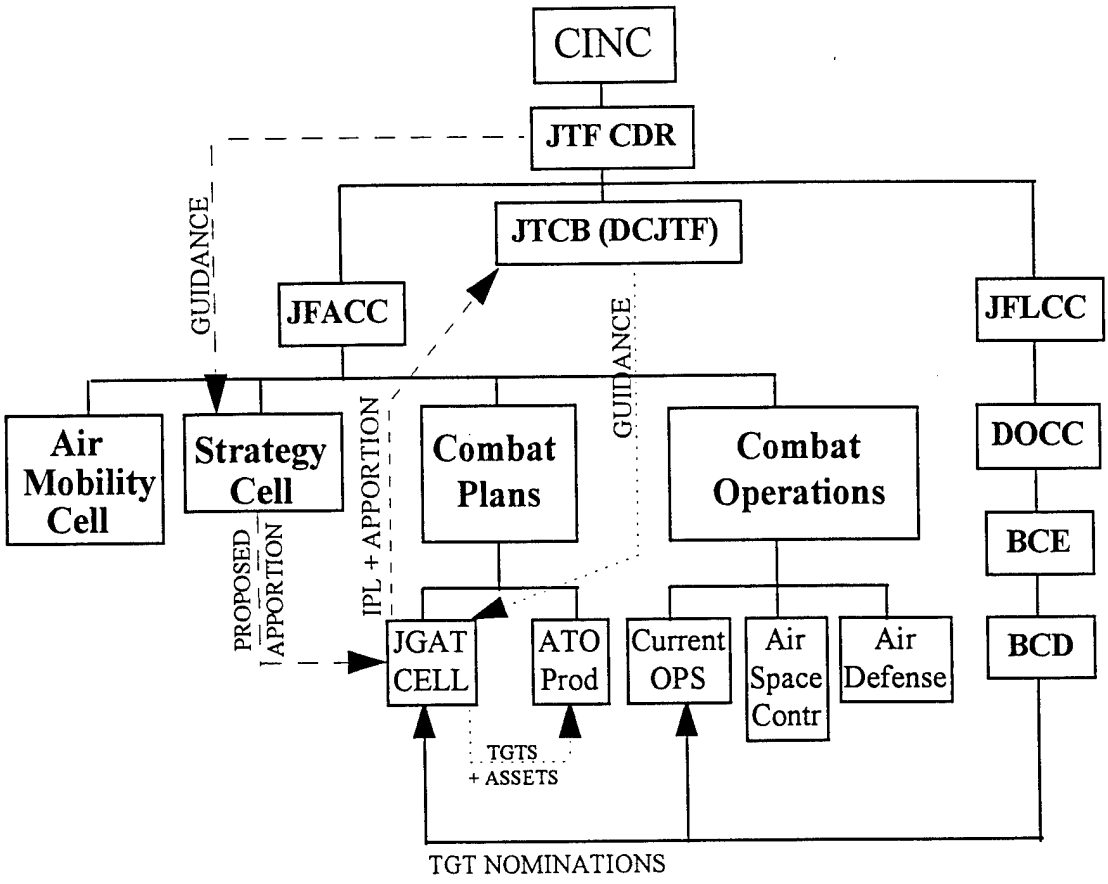
[237] Interview, 1997, track sheet #410.

The Ground Component Commander Uses Specialized Working Groups

Organizationally, the JTFs imitate CFC processes and functions such as deep operations coordination cells, and battlefield coordination detachments and elements. The battlefield coordination detachment functions as a mid-level working group integrated into the combat operations division of the JFACC.[238] The battlefield coordination detachment also interacts with the joint targeting coordination board by means of a senior liaison officer. See Figure 16 for an overview of the different working groups in the targeting process and the degree of specialization.

[238] Ibid.

FIGURE 16 - EUCOM DEEP BATTLE ORGANIZATION



The JFACC Internal Structure is Changing

The JFACC organization is composed of representatives from each service. This organization is being modified to increase functional specialization. For example, the strategy cell works directly for the JFACC and is not directly part of the targeting board function; however, the strategy cell's output is used throughout the targeting process. The strategy cell takes the CINC's/JTF's guidance and converts it into a deep operations plan by creating sequenced and prioritized operational tasks.

Additionally, an air mobility cell was recently created to manage inter- and intra-theater airlift. This new addition to the deep battle structure occurred because of the

restructured force in EUCOM. During the Cold War, EUCOM had a large standing force in theater. All that has changed. Since EUCOM now has to rely upon forces deploying into the theater to fight, a separate function was created to manage the deployment process. Furthermore, because of the huge land mass within the AOR, intra-theater airlift is an important factor in EUCOM's battlespace. Intra-theater airlift is centrally controlled through the air mobility cell.[239] Moreover, as the commander plans offensive operations, intra-theater airlift planning concerns must be folded into the deep battlespace plan--today's deep battlespace targets may be future landing airfields for forward logistical resupply.

Furthermore, EUCOM has created and uses a mobile joint air operations center to control deep operations anywhere in the AOR. The 32nd Air Operations Group based at Ramstein Air Base, Germany is equipped and trained to deploy quickly. A cadre of combat planners, air tasking order builders, strategists, and intelligence personnel are part of this mobile organization.[240] This deployable capability allows EUCOM to flexibly respond to a myriad of contingencies. For example, the mobile center deployed recently to the Democratic Republic of the Congo and to a carrier battle group in the Adriatic.[241]

Deep Battlespace Procedures

EUCOM's targeting process has recently changed and resembles the PACOM and CENTCOM processes and functions. Deep battlespace targeting begins with long range planning, where the CINC staff develops and distributes the campaign strategy to the JTF.

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[239] Interview, 1997, track sheet #400.

[240] Ibid.

[241] Interview, 1997, track sheet #410.

The JTF staff interprets the CINC guidance and develops priorities for the joint targeting coordination board and the joint force fires coordinator (when used).[242] The strategy cell takes the JTF interpretation of CINC guidance and develops deep battlespace tasks which include strategic attack, counter air, interdiction, and direct action missions. The strategy cell also recommends apportionment priorities that are consistent with JTF guidance. The strategy cell is composed of representatives from each service and includes SOF, tomahawk land attack missiles, and Apache experts. The strategy cell focuses on deep battlespace actions 72 hours into the future. Like in other commands, the guidance, apportionment and targeting cell collects target nominations from each component and builds an integrated, prioritized list of targets. The Army nominates its targets by consolidating and prioritizing them within its deep operations coordination cell, and then forwards their target list to the guidance, apportionment and targeting cell through and battlefield coordination detachment and element. Once the integrated target list and apportionment are approved, the air tasking order is created within combat plans. The guidance, apportionment and targeting cell also allocates sorties based on the approved apportionment and matches targets with weapon systems prior to air tasking order development. Sequencing and prioritizing targets is accomplished by the guidance, apportionment and targeting cell as a short range planning function. Like in other commands, the air tasking order is developed and distributed to the other components 12 hours before execution.

[242] The joint force fires coordinator process will be discussed in the next section.

The Joint Force Fires Coordinator Procedures Support the Targeting Effort

SETF uses a joint force fires coordinator in its targeting process. This JTF function works in tandem with the JFACC. In this arrangement, deep battlespace targeting occurs at the Deputy JFC chaired "joint coordination board."[243] The joint coordination board is like the joint target coordination boards in PACOM and CENTCOM, and the combined targeting board in CFC. In EUCOM, the joint force fires coordinator has three divisions: targeting, operations, and plans. See Figure 17 for a depiction of the joint force fires coordinator structure. The targeting section collects targeting information from the JTF J-2.[244] Armed with current combat assessment, the joint force fires coordinator nominates deep targets during targeting meetings--just like other components. The operations section is part of the JTF operations center. It "...is the focal point for current operational fires and execution of fire plans within the JTF AOR."[245] The JFFC's operations section is comparable to the JFACC's current operations function which monitors and adjusts the air tasking order. Specifically, the joint force fires coordinator represents JFLCC interests within the JFACC's command center by requesting changes in currently assigned deep battlespace missions. Lastly, the plans section concentrates on joint fires issues during deliberate planning. It also creates part of the JTF operation order.[246]

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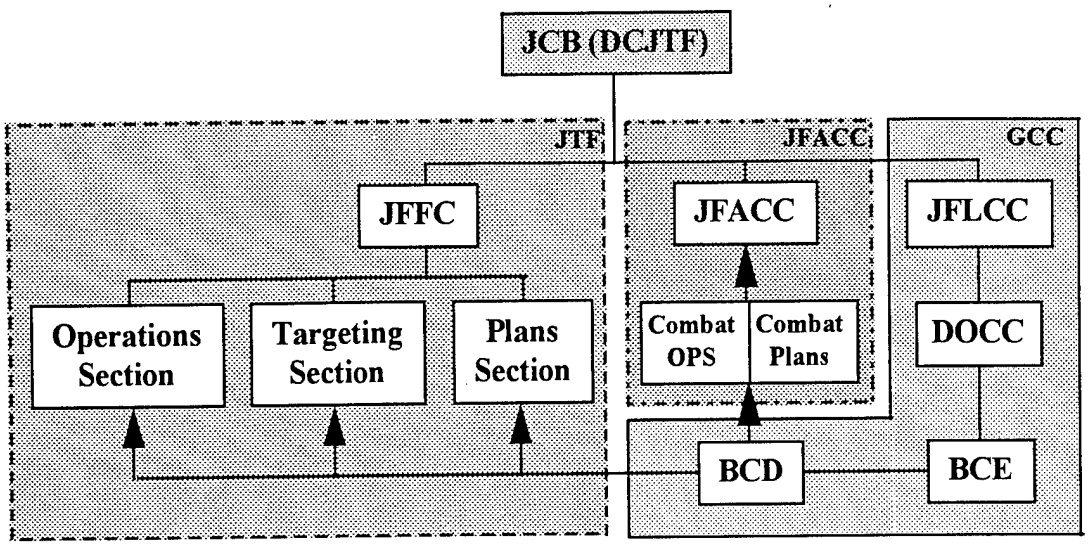
[243] U.S. Southern European Task Force, *Joint Standard Operating Procedures, Southern European Task Force,* Volume 5, Chapter 5, "Joint Fires" (Longary, Italy: Headquarters U.S. Southern European Task Force, 20 March 1996) 5-3.

[244] Ibid., 5-4.

[245] Ibid.

[246] Ibid.

FIGURE 17 - EUCOM DEEP BATTLE ORGANIZATION WITH JOINT FORCE FIRES COORDINATOR



In short, EUCOM has several layers of interactive working groups which focus on sequencing and prioritizing operational tasks to synchronize deep battlespace activities. Relevant aspects of the contingency framework are discussed next. Remember, EUCOM is in a quadrant IV, dynamic-complex environment where uncertainty forces operations to be adaptive and flexible.

Mechanistic Structures

EUCOM uses a mechanistic structure which includes service and functional components. Unlike other geographic combatant commands, these components do not have their own segmented area of operations. Instead, integrative activities among the functional components occur with a joint force fires coordinator in one JTF, and through informal relationships in other JTFs.

Working Groups

Many specialized working groups were identified within the EUCOM organization. Many of these functions and processes are similar to other geographic combatant commands discussed previously. However, other customized working groups have been created to help EUCOM cope with its unique environmental demands. For example, the joint force fires coordinator, as well as a JFC level strategy cell, and an air mobility element are new additions to EUCOM. These specialized working groups cope effectively with uncertainty. Additionally, interaction among the various functions and processes occurs through the joint force fires coordinator who acts as an integrator across the different functional components. Although implementing the joint force fires coordinator concept has been problematic, EUCOM's approach to integrate specialized working groups with this function is consistent with the analytical framework described in Chapter 3.[247]

Integrating Roles

Other integrative actions in EUCOM include developing a primer tailored to the theater. This primer is called the "little red book" which addresses organizations, procedures, targeting, close and deep battle planning, apportionment, and other processes.[248] A test of the modified organization and procedures will be conducted during Exercise Union Flash 97, a Army-Air Force computer assisted war game simulation.[249]

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[247] Lorsch, 1970, 5.

[248] Interview, 1997, track sheet #410.

[249] Ibid.

As in other commands, increasingly specialized working groups require an integrative role to ensure unity of effort in deep battlespace planning. The joint force fires coordinator is one way to ensure integration. Other ways involve interactions among the guidance, apportionment and targeting cell, strategy cell, deep operations coordination cell, battlefield coordination detachment, combat planners, and others. Ad hoc meetings which pull together their different outputs help ensure unity of effort.

Imitation

Organizational imitation is prevalent in EUCOM, as in other commands. Developing 'the little red book' is an example of imitating CFC's and CENTCOM's primers for deep operations. The modified internal structure of the JTFs which include a deep operations coordination cell, battlefield coordination detachment and element, and more all originated from other theaters. The strategy cell idea originated in CFC in 1991 by Lieutenant General Estes; however, this function was renamed the synchronization cell in 1994 to avoid any confusion with the CINC's campaign strategy.[250] Imitation helps EUCOM to meet theater challenges.

Planning and Forecasting

As in other theaters, extensive planning occurs to prepare for changing environments. EUCOM sees itself as "...an asymmetric, non-linear battlefield where every action must be

[250] Interview, 1997, track sheet #010. General Estes was the Deputy CINC of U.S. Forces Korea when he created the strategy cell.

synchronized and every action causes a reaction which must be addressed."[251] As a result, EUCOM plans on a variety of battlespaces and other warfighting responses. The command feels that each warfighting challenge will be unique and that neither OPLANs nor primers can possibly capture the flexibility required. Intelligence recommendations continuously cause the command to reassess its current organizational responses to change.

Summary

EUCOM is undergoing changes in its theater missions, forces, and threats. It has moved through immense force cuts to a streamlined, adaptive warfighting command. The theater continues to accept many challenges across a broad spectrum of conflict. Both constant change in the theater and complexity related to the large number of independent countries provide much uncertainty. EUCOM is probably the most engaged geographic combatant command and continues to adapt to meet theater challenges.

U.S. Atlantic Command

The U.S. Atlantic Command (ACOM) AOR is comprised of the continental United States, Canada, Mexico, and Cuba. The region is predominantly maritime in nature where few land offensives may occur. As a result, ACOM's primary mission, by default, is to provide forces to other geographic combatant commands. ACOM's approach to DBS is unique.

Environmental Factors

Counter-drug operations, support and stabilization of weak Caribbean states, and the

[251] Interview, 1997, track sheet #400.

defense of the United States are among ACOM's missions. ACOM has few opportunities for offensive ground operations; however, there are occasional opportunities for military operations other than war. Regional threats are relatively minor and rarely come within ACOM's responsibility. For example, responsibility for narcotics trafficking falls under the U.S. Drug Enforcement Agency (DEA). Similarly, supporting weak Caribbean nations is a U.S. Department of State responsibility. Cuba will soon transfer to U.S. Southern Command's AOR.

Besides the few land-based threats mentioned above, the remainder of the theater is maritime in nature. ACOM has numerous sea lines of operation available to potential aggressors.[252] The Atlantic and Pacific Oceans, and the Gulf of Mexico's vast area provides much maneuvering battlespace for aggressors. ACOM's maritime environment presents challenges associated with uncertainty. For example, when two maritime aggressors engage in a major battle in international waters, this battle could transition to land battle inside or outside of ACOM's AOR. Aggressive military actions in the open seas may require a military response if U.S. policy makers consider the actions a threat to national interests. When considering responses to uncertain open ocean environments, among the considerations which must be addressed are: the impact on bordering AORs; cross-AOR information exchanges and redundant military responses among commands; and weapon systems which can attack the U.S. from aggressors not in ACOM's AOR. For example, European aggressors could conduct a maritime action in the North Atlantic Ocean which is in ACOM's AOR, but the countries are within EUCOM's AOR. Additionally, Central American countries, Cuba, and

[252] Milan Vego, "Maritime Theater and Its Elements" (U.S. Naval War College: Department of Joint Military Operations, 1996) 3.

the Caribbean could conduct aggressive military actions in the Gulf of Mexico or eastern Pacific Ocean which are also in ACOM's AOR, but some of the countries are in U.S. Southern Command's AOR. Cross-theater contingencies increase environmental uncertainty.

In reality, the military threat in ACOM's AOR is relatively low when compared with the other geographic combatant commands. A low threat also can cause domestic economic and political uncertainty for ACOM because it is difficult to justify force requirements during downsizing environments. Typical regional operations are limited to exercises with Caribbean nations, Canada, and other visiting military units. Therefore, ACOM relies on its forces to gain experience while deployed to other AOR's.

Despite having a low threat, ACOM is still considered as having a quadrant IV, dynamic-complex external environment. The vast maritime nature of the theater causes much uncertainty. Many different aggressive actions can occur on the open seas, ranging from classic maritime conflicts such as blockades and hijackings to sea-launched nuclear attacks. Getting apportioned regular forces in the joint strategic capabilities plan for theater contingencies is a constant challenge.[253] A majority of the countries within ACOM's AOR are friendly with the U.S.; therefore, political considerations are important factors in regional engagement strategies.

ACOM is a Force Provider

ACOM is characterized as an unconventional theater, as the above discussion shows; therefore, it has a unique warfighting perspective. The command has become a "force

[253] U.S. Joint Staff, "Joint Strategic Planning System" *Memorandum of Policy #7* (Washington, D.C.: The Pentagon, 1990).

provider" for other geographic CINCs.[254] Because of this force providing role, ACOM has modified its operations to include scheduling, training, and preparing joint forces--especially deploying carrier battle groups (CVBGs) and joint task forces. This training function occurs with a series of live and command post joint exercises. ACOM forces regularly deploy to EUCOM and CENTCOM. When not augmenting other commands, ACOM forces go through their own training cycles and respond to theater contingencies. For example, Caribbean counter-drug operations, semi-annual CVBG pre-deployment training, and bi-annual fleet level exercises (like Ocean Venture) are typical ACOM activities. The characteristics of the AOR coupled with relatively low in-theater operations shape ACOM's organizational structure.

ACOM's Maritime Theater Has Deep Battlespace Activities Too

ACOM relies upon CVBGs to perform joint task force responses to AOR threats. CVBG operations are similar to JTF operations in other theaters, except in ACOM the preponderance of force normally belongs to the Navy. Naval operations at sea have commonalities with close and deep battlespace concepts. Close battlespace at sea represents combat activities between forces in contact with the enemy. Units in contact at sea are usually within the defensive network of a CVBG.[255] Deep battlespace represents the battle area beyond the close, defensive network where numerous activities must be synchronized to achieve unity of effort. For example, counter air, surveillance, strike, submarine, and

[254] Interview, 1997, track sheet #500.

[255] U.S. Department of the Navy, *Naval Warfare Publication 10-1-22, Antisurface Warfare Commander's Manual*, (Washington, D.C.: U.S. Department of the Navy, 1986) 5-2.

amphibious operations each project power into deep battlespace.[256] See Figure 18 for functions and processes used by ACOM to adapt to its AOR requirements.

FIGURE 18 - MECHANISTIC ORGANIZATIONAL STRUCTURES AND INTERACTIONS IN ACOM

Operational Synchronization Processes in Use

Command	Current Operations	Short Range Planning	Mid Range Planning	Long Range Planning	CINC Component Structure	Integration Working Groups
ACOM	✓	✓	✓	✓	S + F	*

S = Service
F = Functional
*= JFFC is used to accomplish limited integration
✓= Processes in place

Deep Battlespace Planning Functions Are Customized to the Maritime Environment

Deep battlespace operations are accomplished at three levels in the carrier battle group. The upper level operations function is controlled by the tactical flag command center (TFCC) which oversees each of the battlegroup's warfighting capabilities--including offensive operations.[257] The mid-level planning function is controlled by the carrier air wing and destroyer squadron staff who also have watch teams. This mid-level function focuses on the operational/tactical level of operations. The lowest level of control is at the individual ship level where tactical action officers (TAO) and their supporting watch teams execute plans or tasks to achieve battlegroup commander operational objectives.[258] The lowest level of control

[256] U.S. Department of the Navy, *Naval Warfare Publication 10-2(A), Tactical Air Strike Operations Against Land Targets* (Washington, D.C.: U.S. Department of the Navy, 1994) 2-3.

[257] U.S. Department of the Navy, *Naval Warfare Publication 8(B) Command and Control,* (Washington, D.C.: U.S. Department of the Navy, 1985) 5-12.

[258] U.S. Department of the Navy, *Naval Warfare Publication 10-1(A), Composite Warfare Commander's Manual* (Washington, D.C.: U.S. Department of the Navy, 1993) 11-1.

in ACOM's CVBGs is roughly analogous to a JTF's current operations planning function. Each level has decentralized power to re-prioritize or adjust missions and plans to address emerging threats. For example, the upper level function can change operational objectives and tasks, the mid-level can adjust tasks and missions, and the lowest level can adjust missions and strike assets based on battle changes.

An upper level working group on the CVBG staff conducts medium and long range planning. The CVBG commander normally has broad guidance from the CINC.[259] The CVBG staff translates this guidance into a campaign or major operations plan. The warfare commanders' conference is the working group comprised of the CVBG staff J-codes, the afloat JFACC commander (if employed), the air wing commander, the destroyer squadron commander, and the senior unit commanders.[260] The commanders' conference takes the CVBG commander's guidance and creates an overall deep operations plan to distribute among each "warfare area" (like surface, air, undersea, strike, and command and control):

> Central to the doctrine is the need for skillful, dynamic, and aggressive warfare commanders...whose judgement and actions earn the CWC's [composite warfare commander] confidence. This confidence is gained by active participation with the CWC and other warfare commanders...in the management of force assets and development of warfare area strategies....[261]

Mid-range planning also occurs in the mid-level control functions of the air wing, destroyer squadron, and battlegroup warfare area commanders.[262] The CVBG staff J-2

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[259] *NWP 10-1(A)*, 3-1.

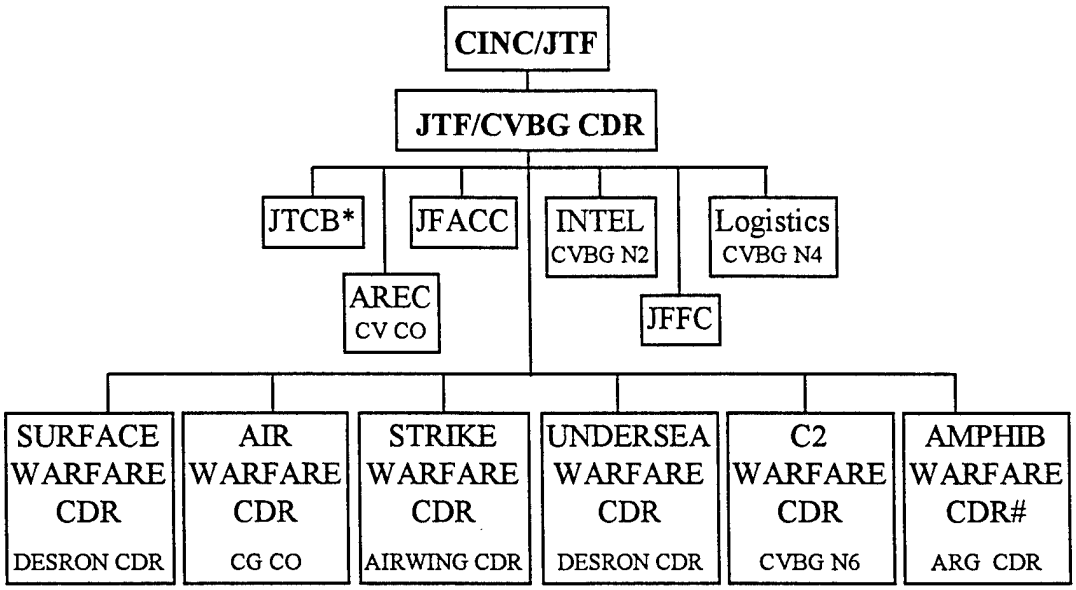
[260] Interview, 1997, track sheet #020.

[261] *NWP 10-1(A)*, 2-3.

[262] *NWP 10-2(A)*, 6-1.

provides intelligence assessments and candidate targets based on information from units in the battlegroup, early warning assets, and off-board cueing from overhead sensors and land-based assets. A joint target coordination board is positioned one echelon below the battlegroup commander to create an air tasking order, when the JFACC is sea-based. When the warfare area commanders receive the operational plan, they develop tactical procedures approximately 72 hours before execution. Figure 19 depicts the formal CVBG command relations.

FIGURE 19 - ACOM COMMAND RELATIONS FOR THE CVBG[263]



* Working group is employed in conjunction with JFACC.
\# Amphibious Commander will be defended by the CVBG until landing operations are completed, then specialized command relations will be used.

Similarities Among ACOM and Other Geographic CINCs in DBS

Specific deep operations activities are planned in each warfare area with sequenced

[263] Adapted from *NWP 10-1(A), 2-2.*

and prioritized tasks. Apportionment priorities are created in the warfare commanders' conference. By centrally controlling the apportionment process, the CVBG commander ensures no conflicts develop over asset allocation among the different warfare areas.

Warfare area guidance is also created in the warfare commanders' conference. A key difference between ACOM and other geographic combatant commanders is that warfare area planners must formally request use of assets from different warfare areas if required to execute their part of the deep battlespace plan. For example, to task a Tomahawk missile strike, an "Indigo Request" message must be sent to the Tomahawk strike coordinator and the strike warfare commander.[264] The Tomahawk strike coordinator can be part of the CINC staff or from one of his components. Anti-ship missile attacks require a "Turquoise Request" message to the surface warfare commander.[265] These formalized requests for cross-area support epitomize a mechanistic structure which values control over flexible adaptability to battlespace ambiguities.

In producing a deep battlespace plan which sequences and prioritizes targets to strike with CVBG assets, the strike warfare commander and air resource element coordinator (AREC) (both in the grade of O-6) work together to produce a "daily air plan" and the "deck spot plan" for aircraft missions.[266] The daily air plans are typically constructed three days in advance.[267] They are refined up to eight hours before execution and then distributed

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[264] U.S. Department of the Navy, *Naval Warfare Publication 10-1-12, Rev B, Maritime Reporting System.* (Washington, D.C.: U.S. Department of the Navy, 1989), 3F-1.

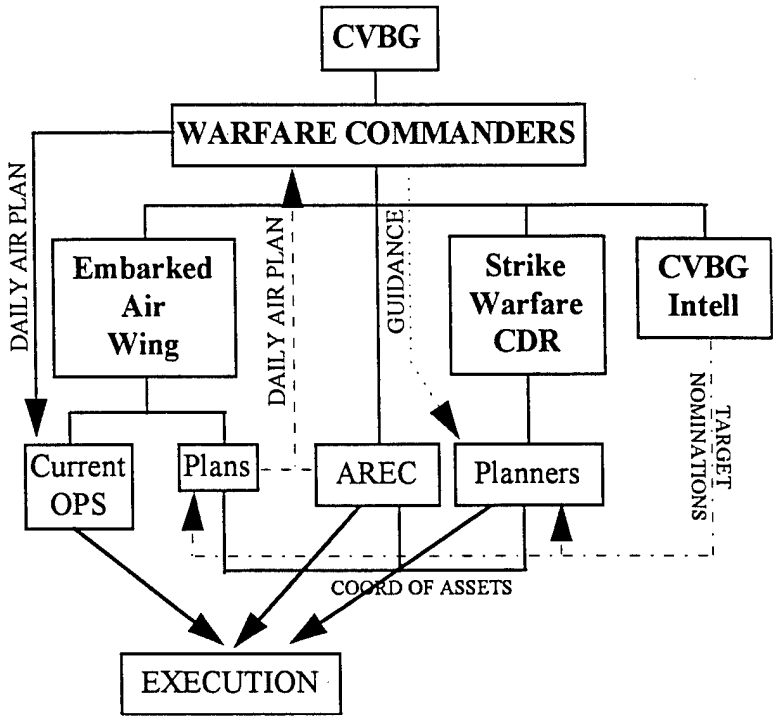
[265] Ibid., 3O-1.

[266] *NWP 10-1(A), 14-4.*

[267] *NWP 10-2(A)*, 2-3.

throughout the CVBG. The deck spot plan for the aircraft carrier prioritizes and sequences the positioning, fueling, launching, and recovering operations of aircraft on the flight deck. This spot plan is an important planning function because of the limited space on the deck of an aircraft carrier.

FIGURE 20 - DEEP BATTLE PROCESSES FOR THE CVBG



Although the above process is more typical of CVBG operations, occasionally, a sea-based JFACC is used. When a sea-based JFACC is used the process is similar to DBS planning in other geographic commands. For example, a joint targeting coordination board is composed of warfare and functional representatives from each warfare area, reviews and approves the joint integrated prioritized target list, and recommends apportionment (the CVBG commander approves it). A strategy cell takes the CVBG commander's or JFC's

guidance and intent to create operational priorities and apportionment guidance.[268] Strategy cell outputs are given to a guidance, apportionment and targeting cell which creates a joint integrated prioritized target list from target nominations, and proposes an apportionment plan. The guidance, apportionment and targeting cell is composed of augmentees, and air wing and CVBG staff members, as well as other component liaison personnel. Additionally, the proposed air tasking order is briefed daily to the joint targeting coordination board for approval. Once the apportionment is approved, the air tasking order is further refined until it is distribution 12 hours prior to execution. With a sea-based JFACC, an air tasking order is produced rather than a daily air plan.

When a CVBG's mission includes projecting power ashore to reach operational objectives, other functions are integrated into the existing CVBG processes and functions. For example, a ground, SOF, or psychological operations commander can be integrated into the warfare commanders' conference to ensure their activities are integrated throughout the deep battlespace.

In short, the maritime nature of the AOR forced ACOM to adapt its organizational structure to respond to theater challenges. CVBG operations are used to cope with these challenges. Characterized by highly mechanistic structures and bureaucratic relationships, decentralized execution occurs at low levels. Unfortunately, a CVBG's ability to adapt its deep battlespace plan to rapid environmental changes is questionable because of little integration below the upper levels, and the constrained nature of carrier operations. The use of warfare areas described above is different than the functional commanders used in other

[268] *NWP 3-56.1*, A-5.

geographic combatant commands because warfare areas focus on missions rather than functions.

ACOM Trains Its Service Components

ACOM relies heavily on its service components to provide candidate JTF commanders, staffs, and forces which are trained at its multi-million dollar complex in Norfolk, Virginia called the Joint Training, Analysis, and Simulation Center. Deep operations are worked extensively within the service components. For example, Second Fleet (C2F) has refined the sea-based JFACC concept and is experimenting with the joint force fires coordinator concept in its exercise programs.[269] Eighth Air Force trains in deep operations with ACOM's Joint Training, Analysis, and Simulation Center. Recently, the Eighth Air Force Commander was the JFACC during Exercise Unified Endeavor 95-1.

ACOM Uses A Joint Force Fires Coordinator

A joint force fires coordinator is not mandated in ACOM; however, the service components have experimented with this position as an integrator during its exercises. The joint force fires coordinator experiments have helped ACOM think about more integrative roles among its warfare areas. In Second Fleet's exercises, the joint force fires coordinator is the joint targeting coordination board facilitator and oversees the targeting process. This allows the combat plans section to focus on medium and long range planning factors. ACOM's standard operating procedures for JTFs states that "...evolving doctrine such as the

[269] Interview, 1997, track sheet #500.

... JFFC are still immature ..." and are not mandatory.[270] During Exercise Unified Endeavor 96-1 and 97-1, a joint force fires coordinator was used. During 96-1, the joint force fires coordinator position was powerless and did not perform any joint fires or integrating functions. During 97-1, on the other hand, the joint force fires coordinator directly conflicted with the JFACC over joint fires, targeting, and other deep battlespace activities.[271] Unfortunately, this integrating function within ACOM's rigid structure is an important role, but still requires refinement. One interviewee said outcomes from joint force fires coordinator experiments are uncertain, but its usefulness will be dependent on the situation.[272]

Specialization

Specialization among warfare areas and among the many sea-based JFACC processes occurs; however, not nearly to the same degree as other geographic combatant commands. The command and control warfare commander is an example of specialization at the command level, rather than the working group level. Additionally, a deep operations coordination cell will be used for the first time this Fall in Exercise Unified Endeavor 98-1.[273]

Integrating Roles

The broad decentralization of combat decision-making among warfare area

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[270] U.S. Atlantic Command, *Joint Task Force Standard Operating Procedures* (Norfolk, VA: Headquarters U.S. Atlantic Command, n.d.) 3-B-1.

[271] Interview, 1997, track sheet #520.

[272] Interview, 1997, track sheet #030.

[273] Interview, 1997, track sheet #020.

commanders, and the limited assets available to them, requires an extraordinary amount of coordinating, sequencing and prioritizing at the operational level. Without an integrated approach to warfighting, vital mission areas such as air defense, may be ineffective resulting in unfavorable close battles. Decentralized warfare area fighting "... embodies a basic organizational structure that is susceptible to flexible implementation...to aggressively wage offensive and defensive combat operations...."[274] Additionally, much integration occurs within the sea-based JFACC when used.

Integration has been a double edged sword in the training environment. Integration occurs among departments to produce an effective air tasking order or daily air plan. Unfortunately, training opportunities to refine the joint force fires coordinator idea or the sea-based JFACC concept within ACOM are limited because CVBGs are deployed so often.[275]

Imitation

Imitation among other geographic commands and the sea-based JFACC is extensive. Processes and functions have been tailored to a ship environment; however, many of the strategy-to-task functions within the sea-based JFACC are imitated from other commands.

Within ACOM, the exercise environment provides the Joint Training, Analysis, and Simulation Center an opportunity to distribute successfully processes and functions throughout the command. The Joint Training, Analysis, and Simulation Center training syllabus is divided into three phases. During phase 1, the center provides classroom training

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[274] *NWP 10-1(A)*, 2-1.

[275] Daniel J. Murphy, "Eisenhower Battle Group Post-Deployment Briefing to the CNO," Washington, D.C., the Pentagon, 25 April 1995.

in joint doctrine, deep battlespace operations, command relationships, and more. During phases 2 and 3, the service components have a chance to apply the concepts by creating a commander's estimate of the situation, and then eventually executing their own campaign plan in an interactive simulation.[276] Because the training staff at the center consistently use an approved syllabus which incorporates lessons learned from past exercises, much imitation occurs throughout ACOM.

Planning and Forecasting

Recent shifts in the focus of the warfare commanders' conference from short range to medium and long range planning has improved ACOM's planning efforts. Ten years ago, CVBGs were concerned with internal tactical level factors which drove planning such as fuel consumption, ordnance inventory, and food. Today, CVBGs are concerned more with environment factors and operational issues such as the enemy order of battle, international relations, and campaign planning.[277]

Summary

In summary, ACOM has much expertise in DBS within a maritime environment. Although threats within its AOR are relatively low, ACOM must contend with much ocean battlespace uncertainty. ACOM operates within a dynamic-complex environment. The

[276] Interview, 1997, track sheet #520.

[277] Interview, 1997, track sheet #020.

command's response to this environment is to train and rely upon CVBGs to conduct warfighting operations. Discussions on each geographic combatant commands have been presented, now focus will shift to a discussion of major findings and issues which impact DBS.

DISCUSSION OF FINDINGS

DoD's declining budget environment mandates a joint, integrated approach to handling future conflicts and synchronized activities throughout the deep battlespace. Findings from the combatant commands show the different ways which commanders synchronize deep battlespace activities. The findings focus on functions and processes because these are the elements of an organizational structure which can be observed, reported and analyzed. The value of a commander's operational art, his intuition, and his judgment are also important aspects of the DBS problem. Unfortunately, no data were gathered on these variables. First hand observations of exercises where the researchers could observe commanders apply experience to deep battlespace decisions would have provided such data. However, the case study research design was used because of resource constraints.

Weapon system and political ramifications also impact upon a commander's deep battlespace actions. The weapon systems available for combat, as well as political support for military operations and clear political end states, provide physical and contextual constraints upon DBS. Data were gathered and analyzed about weapon systems and politics; however, their intangible impacts could not be gauged precisely. Nonetheless, considerations related to weapon and political issues were surfaced because they impact commanders when creating a deep battlespace plan. These impacts are discussed after the discussion on hypotheses.

This discussion section proceeds as follows:

- Hypotheses
- Weapon Acquisitions
- Political Issues
- Air/Integrated Tasking Order
- Doctrinal Issues
- Close/Deep Battlespace Relationships
- Appropriateness of Mechanistic Structures

Back to the Hypotheses and the Multivariate Models

H_{1a}: Deep Battlespace Synchronization Of Joint Service Actions Leads To Greater Unity Of Effort.

DBS of joint service actions is necessary to achieve greater unity of effort. The findings discuss external environmental factors impacting each command, and the relevant organizational structures and processes used by CINCs and JFCs to conduct DBS. Coupled with the environmental factors, and organizational structures and processes are an individual's "webs of belief," which have tremendous impact on "CINC"ronization and unified effort throughout the deep battlespace.[278] The factors of organizational structures, organizational processes, and external factors were described in the last section. Data on an individual's webs of belief were not gathered. In Chapter 4, a simple multivariate model was offered which said:

$$DBS = O_s + O_p + I_w + E_e.$$

Recall that DBS equals the sum of organizational structure (O_s), organizational processes (O_p), an individual's webs of belief (I_W), and external environmental (E_e) factors.

[278] Sir Geoffrey Vickers, *Policymaking, Communication, and Social Learning* (New Brunswick: Transaction Books, 1987) 4. This concept will be addressed in the next paragraph.

Both measuring and gathering data on I_w were impossible without conducting a participant-observation, ethnographic, or other study. However, in general, a commander's impact on DBS is influenced by his application of operational art. According to one interviewee: "...we use our noggin to do the synchronizing." Applying operational art, unfortunately, is a euphemistic way of saying an "educated guess." So, discussing the essence of an educated guess is an appropriate discussion topic.

An individual's values and experiences, as encountered and modified throughout one's life, builds upon one another. As early experiences occur, they form individual beliefs. Additional experiences build upon the beliefs of earlier experiences to form webs of belief. These webs of belief are what Sir Geoffrey Vickers calls an "appreciative system."[279] CINCs and JFCs knowingly or unknowingly rely upon their appreciative systems to make value-based judgments and decisions about DBS. When a commander uses operational art to make a decision, he relies upon his appreciative system as the foundation on which he views the world. "CINC"ronization at the top level occurs through visualizing the campaign end-state, articulating intent, and incorporating all the operational level activities involved into a battlespace plan.

Many geographic combatant commands incorporated various deep battlespace activities into their planning processes. However, knowledge of the entire set of these activities rests with few individuals within a command. True deception plans may only reside in the commander's mind. Information warfare and special technical operations both are restricted to few individuals. "CINC"ronization of all activities to reach campaign objectives

[279] Ibid.

with unity of effort occurs at the top. Currently, a CINC's guidance and intent is filtered by various organizational levels: different components, different working groups, and different command levels. Each interpretation of the CINC's directives relies upon the listener's unique appreciative system. In order to "CINC"ronize deep battlespace activities, operational planners (the ones actually doing the job) should have unfiltered access to the commander's directions. More importantly, any discussion about DBS must include the impact of an individual's webs of belief because value-based judgment permeates the uncertain battlespace.

H_{1b}: Sequencing And Prioritizing Operational Tasks Leads To Greater Unity Of Effort.

Sequencing and prioritizing operational tasks in deep battlespace is the essence of DBS. The process of sequencing and prioritizing these tasks often rests in the hands of a working group within geographic combatant commands. This process relies upon interaction among various component representatives, assigned mission specialists, and other factors. The findings show that some commands do create sequenced and prioritized tasks. Capturing the required tasks to support operational objectives, and then sequencing and prioritizing them is a complex process which must be adapted uniquely to each situation. Creating this list of tasks in sequential order is an exercise in applying operational art at various levels.

Ideally, the next step after creating a sequenced and prioritized task list is to create a master attack plan which captures the complete set of relevant targets which must be destroyed in deep battlespace in sequenced and prioritized order. Destroying these targets should achieve the specific operational tasks. Meilinger says that "...being able to strike anything does not mean that one should strike everything. Selecting objectives to strike or

influence is the essence of air strategy."[280] The researchers could find no evidence that any command had a function or process responsible for creating such a comprehensive master attack plan. By understanding the total sets of targets and key targets within each set, operational planners can begin to craft a deep battlespace plan which can systematically destroy, disrupt, or delay different target sets to achieve specific tasks and desired effects. With a master attack plan, unified effort becomes more achievable because a complete view of the campaign attack plan is known. Armed with this information, commanders can match weapon systems to targets more easily. As is currently done, creating a daily attack plan is focused on short term planning where different services may feel left out or irrelevant because they may not be allowed to participate in the conflict. A master attack plan lets all players know their specific pre-planned roles.

The second multivariate model described briefly in Chapter 4 is:

$$U_e = O_o + O_t + S_t + P_t + G_c$$

Recall that U_e is unity of effort, O_o is operational objectives, O_t is operational tasks, S_t is sequenced tasks, P_t is prioritized tasks, and G_c is goal congruency. Operational objectives, and sequenced and prioritized tasks have been discussed. Goal congruency, on the other hand, has not been discussed. This factor is included in the model describing unity of effort because goal congruency among the services is needed to ensure unity of effort. Goal congruency simply means that the services have complementary goals for deep battlespace activities. If "the little league rules" really do prevail, then goal congruency will be difficult to achieve, and true unity of effort even more difficult because of service-specific agendas. This

[280] Meilinger, 58.

study provided little insight into the goal congruency factor, except that much service competition was evident throughout many of the interviews.[281]

For example, the JFLCC has both the assets and intelligence support to attack deep targets affecting his near-future ground scheme of maneuver. However, the JFACC is normally the supported commander for interdiction which includes targets beyond the fire support coordination line, but still within the JFLCC's forward boundary. These battlespace overlaps cause natural inter-service rivalries during competitions for missions and resources.

Competition among organizational sub-units is often considered a way to improve overall organizational performance in the management science and post-bureaucratic literature. However, within budget allocation debates, inter-service competition sometimes appears as if DoD does not have a firm grasp on the distinction in warfighting roles among the services. If DoD cannot resolve inter-service budget allocation conflicts, then how can one expect that a joint service unified effort will occur during combat?

Marine air's "protected status" in the *UNAAF* highlights DoD's difficulty in providing a unified effort during combat. There are many occasions when the JFACC or JFLCC require Marine assets to assist with their current battles. Even when the Marines are not designated as the main effort, using Marine air assets to support the main effort often requires CINC level attention.[282] Providing the MAGTF its own area of operations after an amphibious operation does not provide unified effort. Rather, it prevents fratricide and makes deconfliction easy, while sub-optimizing asset utilization in joint battlespace. Alternatively, complementary

[281] Inter-service competition will be discussed in more detail in a separate section.

[282] Interview, 1997, track sheet #120.

interdiction and counter air missions between the MAGTF and JFACC could occur with greater unity of effort. Allowing the JFACC to control all deep attack assets beyond the fire support coordination line could provide greater unity of effort. Moreover, the JFACC could be an Air Force, Navy or Marine officer--unity of command over deep battlespace is most important in this case.

Some progress in this area was highlighted in CENTCOM where Marine and Army units have established procedures for extended operations beyond an initial amphibious operation. Unfortunately, elsewhere the MAGTF fragments the JFC's command and control because MAGTF air operations, even as part of major theater wars, are protected.

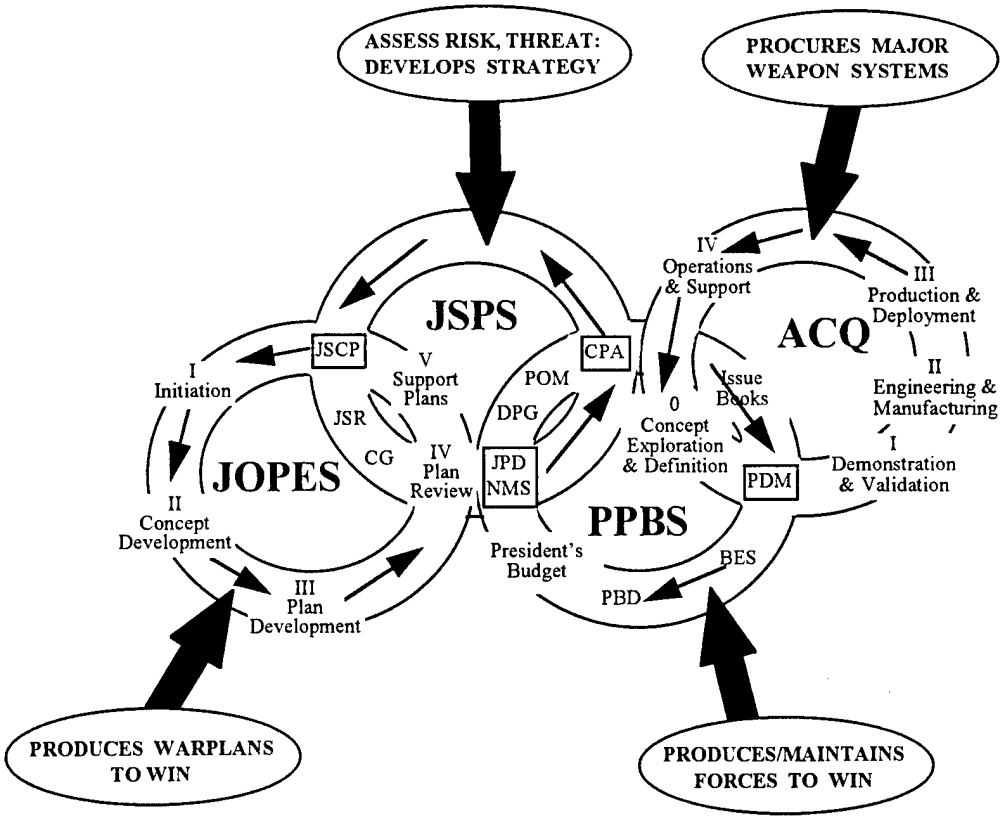
The Acquisition Process and Deep Battlespace Synchronization

Any discussion of deep battlespace synchronization must eventually involve a detailed look at the systems available to CINCs (such as weapons, intelligence and acquisitions) to execute their deep battle. The theory, concepts and doctrine surrounding deep battlespace are inexplicably tied to the systems available currently or in the near future to warfighting commanders. Making those systems available is the responsibility of the DoD through the defense resource allocation system. The following discussion briefly reviews the processes by which weapon systems are made available to CINCs, the influence CINCs have on the systems eventually provided, and the connection among CINC warfighting priorities and actual weapon purchases.

Processes

The DoD allocates scarce resources through a collection of interrelated management sub-systems linking the national strategy to the means available to execute a military operation. The four primary systems are: the joint strategic planning system (JSPS); the joint operations planning and execution system (JOPES); the planning, programming, and budgeting system (PPBS); and the acquisition system (ACQ).

FIGURE 21 - DEFENSE PLANNING SYSTEM INTERRELATIONSHIPS[283]



Overlaying the four primary systems is the recent addition of the joint requirements oversight council (JROC). The JROC is an evolving group of senior officers with tremendous

[283] William C. Keller, *The Defense Resource Allocation Process* (Newport, RI: U.S. Naval War College, 1997) I-7.

influence on the entire acquisition process. It gives CINCs a legitimate input into the allocation of resources.

The primary difference in roles among the CINCs and services is that CINCs do the fighting and services provide ready trained and equipped forces. This separation of functions tends to focus the CINCs' interests on the joint strategic planning system and the joint operational planning and execution system because it matches their strategic and operational focus. The joint strategic planning system is the driving force behind all the other systems because it provides the basis for detailed strategic and operational planning and is supposed to be the rationale for systems acquisition. The joint strategic planning system is a cyclical process which is constantly evaluating national interests, threats, and capabilities. The capstone document of the process is the joint strategic review (JSR).

The joint strategic review provides the critical situation-based background information which highlights the current and future national security environment and is the basis for the national military strategy. Significantly, the joint strategic review provides a process which gathers information from the CINCs, services, joint staff and other appropriate parties and considers trends, projections, issues, and situations which affect national security planning.[284] At the most macro level, the joint strategic review allows CINC input into defining strategic and operational environments.

The next critical CINC input into the system comes during the development of the joint planning document (JPD). The joint planning document recommends specific planning and programming priorities to the Secretary of Defense as he establishes resource priorities

[284] Ibid., II-5.

for the services in the defense planning guidance. The joint planning document provides the CINCs, through the Chairman, a vehicle to influence the priorities and identify deficiencies in a series of specific functional areas. This document is coordinated through the services and can provide clear indications of CINC weapon procurement priorities which may be reflected in the defense planning guidance (DPG).

After the services receive the defense planning guidance, they develop a program objective memorandum (POM). The program objective memorandum represents the core document in the planning, programming, and budget system. It is essentially a proposed budget developed after considering all available inputs, priorities and constraints. Submitting service program objective memorandums triggers a formal review from the Chairman and is another opportunity for CINCs to influence weapon systems procured by services. The Chairman's program assessment (CPA) is provided to the Secretary of Defense and is an evaluation of the service program objective memorandums from the perspective of how well they support CINC priorities and strategic plans.

The Chairman's program assessment can make alternative resource programming recommendations to the Secretary of Defense. The CINCs influence the Chairman's program assessment directly through the Chairman in the form of an integrated priority list submission. The integrated priority list is provided by each CINC to prioritize requirements on a theater-specific basis. The information reflected in the integrated priority list is forwarded to the services in the program objective memorandum development process through the various theater service components. An obvious limitation of the integrated priority list is the potential for wide variance in priorities among various CINCs. Another limitation is the

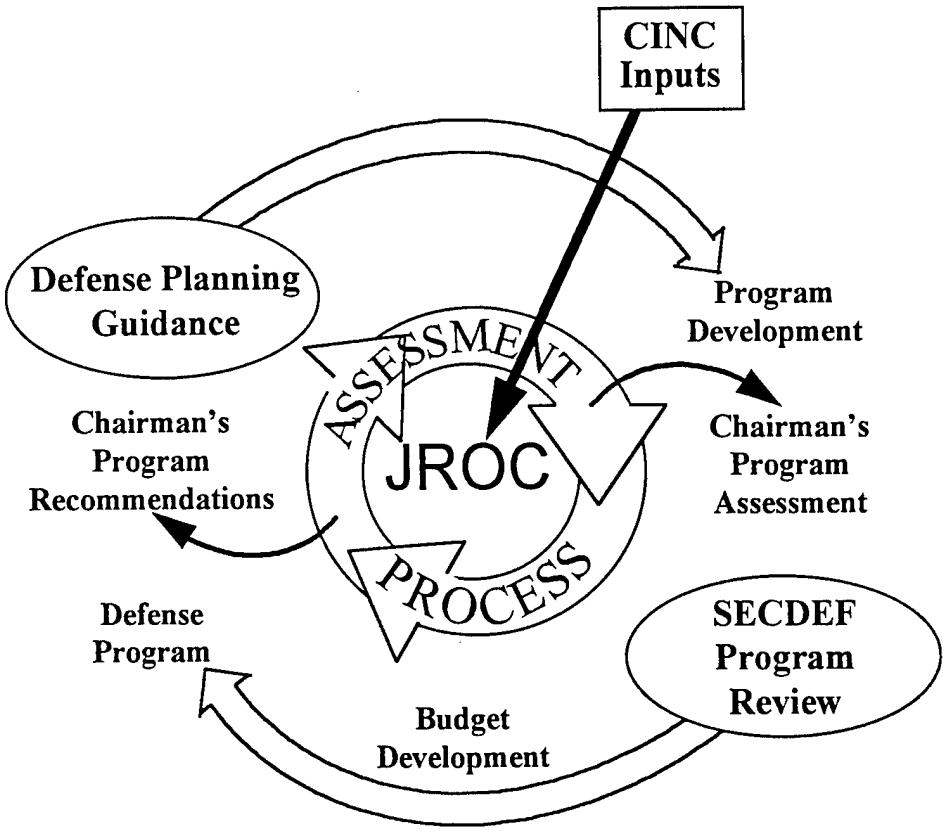
possibility of service component inputs to service decision-makers which is different than the CINC's integrated priority lists. Systems required to execute a deep battle may not be of equal concern across the geographic combatant commands and the value of inputs become diluted when combined with the other competing priorities developed throughout the system.

The dilemma of incorporating CINC requirements into the acquisition process was one of the driving factors behind the 1986 Goldwater-Nichols Act. The significance of this act in terms of CINC input to the resource allocation process was to establish the joint requirements oversight council as a powerful champion of CINC priorities to challenge directly the service dominated process.

The newest, most controversial, and potentially most influential tool available to a CINC to influence the resource allocation system is the joint requirements oversight council. This council is made up of the vice chief/commandants of the services and headed by the Vice Chairman of the Joint Chiefs of Staff (VCJCS). The VCJCS is tasked to provide advice to the Secretary of Defense on resource allocation, specifically those priorities identified by the CINCs. The role of the VCJCS and the joint requirements oversight council in the resource allocation system is relatively new and is still evolving, but it clearly changes the balance between the traditional short range focus of CINCs and the long range focus of the services. The joint requirements oversight council has evolved from a rubber-stamp process during the mid-1980s to a central process which moves major systems to the initial step of the acquisition process. The joint requirements oversight council is a continuous assessment process tying together the Chairman's program recommendations (a key input to the defense planning guidance and the service program objective memorandums) and the Chairman's program

assessment. See Figure 22 below. Most recently, the Chairman's program assessment is much more than a rubber-stamp process. For example, in 1994 and 1995 the Chairman's assessment challenged the service budgets and made significant impacts on programming decision changes.[285]

FIGURE 22 - JROC ASSESSMENT PROCESS[286]



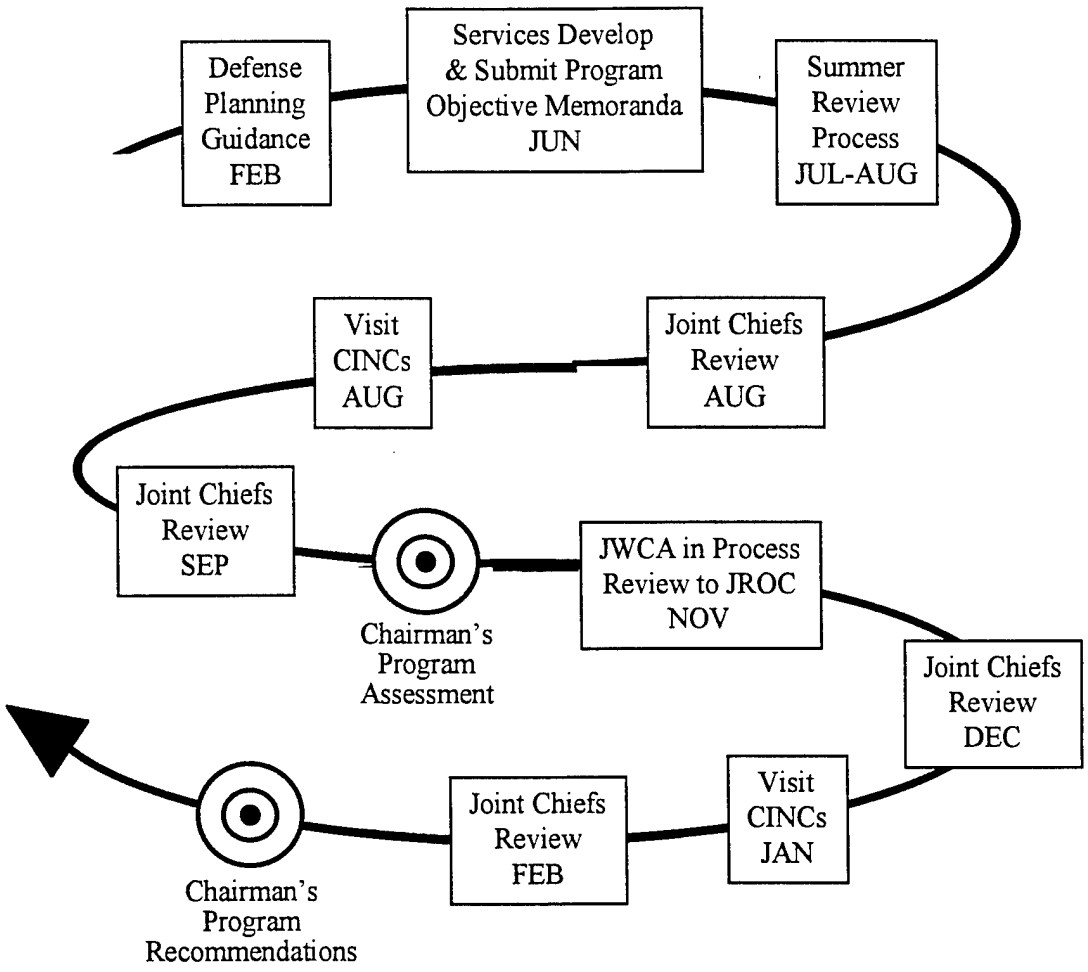
[285] William A. Owens and James R. Blaker, "Overseeing Cross Service Trade Offs," *Joint Force Quarterly*, Autumn 1996, 38.

[286] Ibid., 39.

The joint requirements oversight council is significant in the acquisition process because it provides a cross-service look at weapon systems and has a direct link to the warfighting CINCs. The joint requirements oversight council uses an analytical tool known as the joint warfare capabilities assessments to investigate the capabilities of the armed forces in eleven mission areas which include: strike, land and littoral warfare; strategic mobility and sustainability; sea, air, and space superiority; deter/counter proliferation of WMD; command and control, and information warfare; combating terrorism; intelligence, surveillance and reconnaissance; regional engagement/presence; and joint readiness. Outcomes from the joint warfare capabilities assessment are used by the joint requirements oversight council to evaluate the potential of new acquisitions and to advise the Chairman about requirements and programs.[287] Again, the focus of the joint warfare capabilities assessments is on capabilities as they relate to joint requirements. The CINCs are major players in the joint requirements oversight council/joint warfare capabilities assessments process as indicated by the joint warfare capabilities assessments cycle below.

[287] Keller, III 5-4.

FIGURE 23 - JOINT WARFIGHTING CAPABILITIES ASSESSMENT[288]



The long term significance of processes like the JROC and joint warfare capabilities assessments is still being debated. The apparent short term significance has been to give the CINCs a new and powerful voice in the resource process with the potential to affect system procurements impacting the deep battle. A perspective on the role of the joint requirements oversight council as seen by a former VCJCS is:

[288] Ibid.

> ...collectively, JROC [joint requirements oversight council] and CINCs constitutes a repository of profound military insight and experience, and the rank of its members permits the JROC to act as a corporate body, capable of developing consensus views that transcend individual service perspective.[289]

CINC's Influence and Connection to Priorities

The ability of a CINC to influence which systems to procure for the deep battle is not completely dependent on the formal systems represented by the joint strategic planning system, the planning, programming, and budgeting system, or the joint requirements oversight council. A CINC has tremendous informal influence in the service debates over system priorities and as a senior member of the military can exert significant political influence through congressional testimony and contacts inside and outside DoD.

The most limiting factor in a CINC's ability to influence the system is time. CINCs by their very nature are focused on the near-term future and are not staffed or predisposed to focus much effort beyond those tasks identified in the joint strategic capabilities plan. Services, on the other hand, have always had a long range focus. Anticipating future trends and turning concepts into actual systems is a 8-15 year process. Services develop systems which maximize capabilities within their operational environments. The net result is a seemingly uncoordinated overlap of capabilities where these operational environments meet.[290]

The extent that CINC requirements actually filter into the acquisition process, however, is still not clear. Much conflicting interview data describing an acquisition process

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[289] William A. Owens, "JROC: Harnessing the Revolution in Military Affairs," *Joint Force Quarterly*, Summer, 1994, 55-57.

[290] Interview, 1997, track sheet #720.

that is clearly service-oriented was collected. Both service and joint staffs described an apparent disconnect in the priorities of weapon acquisitions and warfighter needs. For example, each service is acquiring new weapon systems which can rapidly attack deep targets with great precision. Once the new weapon systems begin to reach the warfighting CINCs their employment becomes problematic because doctrinal and other organizational changes have not been made to incorporate the new systems. As has been recently written, for revolutions in military affairs to occur, new technologies must be integrating into organizational structures.[291] In many ways, new deep attack weapons have a profound impact on deep battle; however, the organizational adaptations have not occurred.

The controversy associated with draft *Joint Pub 3-09* which discusses joint fire support is an indication that CINC warfighting needs are disconnected from weapon procurements.[292] This publication has been in draft stages since 1988 with the services failing to endorse it because each service's deep attack weapon systems are not provided an acceptable foundation for battlespace employment. The services' positions in this conflict were so entrenched that the Chiefs of Staff of the Air Force and Army had to resolve the dilemma. Here is what was agreed regarding *Joint Pub 3-09*:

> ... that elements of the fires hierarchy be defined in terms of "effects" rather than specific platforms.
> ... that the surface component commander [JFLCC] is the supported commander for joint fires throughout his area of operations. Beyond the surface component commanders' boundaries, the ACC [air component commander] is the supported commander. In the deliberate planning process, all targets for joint fires will be coordinated to the maximum extent possible.

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[291] James R. Fitzsimonds and Jan M. Van Tol, "Revolutions in Military Affairs," *Joint Force Quarterly*, Spring 1994, 24-31.

[292] U.S. Joint Staff, *Joint Pub 3-09: Doctrine for Joint Fire Support*, preliminary coordinating draft (Washington, D.C.: Government Printing Office, 1997).

> ... that all targets forward of the FSCL [fire support coordination line] and inside the SCC's [surface component commander] area of operation will be coordinated with all affected commanders to the maximum extent possible. If not practical because of time sensitivity, emergency or exceptional circumstances, then all affected commanders will be informed with the commander executing the mission accepting the operational risk.[293]

This agreement was made in December 1996. ATACMS, for example, have been fielded since 1990 and were employed in Operation Desert Storm; however, the controversy over how to control these joint fires into deep battlespace has been contested for years. The debate continues in the joint and service arenas. This debate includes: Should the JFACC control all deep fire assets, such as ATACMS, or should the JFLCC (who owns some deep fire assets) control his own? Within the JFLCC's area of operations, who should control the deep battlespace? What should be the size of the JFLCC's area of operation? Who should control Apache deep strikes? More importantly, how can JFLCC-owned deep fire and JFACC assets be synchronized to ensure complementary, integrated joint service actions?

Political Impacts on DBS

Mechanistic structures permeate geographic combatant commands. These structures are important control elements which ensure that the life and death nature of a CINC's business are carefully constrained by political and bureaucratic processes. While these control mechanisms are incredibly important, they are not cost free. With ever-increasing environmental uncertainty and constant change, the geographic combatant commands need flexibility and adaptability. In the political arena, what is gained in oversight control by

[293] 172201z Dec 96 Joint Message, 2.

Congress is lost in a CINC's inability to real-time adapt to environmental change. In the bureaucratic arena, command structures increase control and accountability, but at the cost of decreased flexibility and adaptability. Political battles and inter-service competitions each impact the deep battle and a CINC's ability to respond to environmental uncertainty. These impacts will be discussed next.

First, the political arena impacts DBS in many ways. These impacts range from politically driven weapon procurement decisions and mission assignments to foreign military sales. Regarding the tools provided to CINCs for fighting the deep battle, political decisions and actions have resulted recently in a congressional directed study mandating DoD assess its deep attack weapons mix to make future procurement decisions.[294] This mandated study uses various computer simulation models with scenarios in 2006 and 2014 to assess optimum deep attack weapon mixes. Within DoD, the outcomes of this modeling have been debated and contested among the services with passion because outcomes vary widely depending on various modeling input assumptions. While CINCs fight their deep battles with current weapon systems, service decisions on weapon procurements impact geographic combatant commands' future warfighting capabilities. For example, the number of ATACMS, TLAMs, COMANCHE helicopters, or B-2s which are procured during the next several years will influence each CINC's allocation of these weapon systems within the joint strategic capabilities plan, which will, in turn, force CINCs to modify existing OPLANs to account for weapon allocation changes.

[294] Interview, 1997, track sheet #720.

Additionally, the *1997 Quadrennial Defense Review Report* is a direct defense input into the political mechanism which oversees DoD.[295] The quadrennial defense review made estimates of future threats and DoD's possible preparedness for those threats. As with the deep attack weapons mix study, outcomes from the quadrennial defense review will affect a CINC's DBS because his allocation of weapon systems will be influenced by future decisions stemming from this study.[296]

Moreover, budget appropriations for major weapon systems are inundated with political interactions. As mentioned earlier, CINCs submit integrated priority lists which prioritize their need for various systems. This warfighter need, however, only influences the acquisition process--it does not drive it. It does enter into the political arena during CINC conferences and congressional presentations. Unfortunately, a CINC who articulates his need for a specific weapon or command and control system in a peacetime environment does not necessarily get political support for that weapon system. For example, appropriations for the V-22 Osprey were approved in 1992 despite the Secretary of Defense's lack of support for the program.[297] This weapon system was essentially mandated by Congressman Curt Weldon (Republican - Pennsylvania) whose district would gain approximately 2500 new jobs working on engines for the helicopter.[298] Although the U.S. Marine Corps and U.S. Special

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[295] Interview, 1997, track sheet #740.

[296] William S. Cohen, *Report of the Quadrennial Defense Review* (Washington, D.C.: The Pentagon, 20 May 1997) Section 3.

[297] John W. Dziminowicz, "Still Hovering After All These Years" (Newport, RI: U.S. Naval War College, National Security Decision Making Department, n.d.).

[298] Ibid.

Operations Command supported the program, the Secretary of Defense did not support it because there were other weapon systems for which CINCs had a greater need.

Furthermore, the operations tempo, shape of a theater of war, and assigned wartime missions for CINCs are influenced strongly by political factors. Assigned wartime and contingency missions stem from U.S. policy makers. Appointing a joint task force commander to reach the political end states by military operations is often a political decision. According to some interviewees, the commander's service affiliation tends to drive the amount of wartime action seen by his service.[299] This may occur because policy makers have determined the desired engagement medium to achieve the policy end states--such as sea, air, or ground-based power projection, and have appointed a commander with expertise in that medium. Alternatively, the amount of combat action seen by a service may truly stem from the commander's service affiliation. In either case, appointing military missions and deciding who commands them is a political decision.

Deep battlespace synchronization varies with the application of operational art by the appointed commander, the assets made available to the commander by the political and military structure, and the nature of the conflict. DBS also varies with the amount of deep battlespace which is available within a commander's area of responsibility. For example, during Operation Desert Storm, the synchronization of deep battlespace actions was a large problem because of the huge open space available in Iraq. Forcing the enemy to reach its culminating point and achieving a decisive victory are products of effectively synchronized

[299] Interview, 1997, track sheet #740; Ronald R. Fogleman, "An Address" (Newport, RI: U.S. Naval War College, 5 May 1997).

deep battlespace activities.[300] Skillful political maneuvering can provide CINCs with a large theater of war. This large space provides many advantages such as the ability to achieve both spatial and temporal surprise, and staging bases for friendly forces; however, synchronizing deep actions becomes more complex as more actions can occur simultaneously. The goal of operations in depth is to "...overwhelm the enemy throughout the battle area from multiple dimensions, contributing to its speedy defeat or capitulation."[301]

Finally, coalitions are formed through the political process. Forces and weapon systems from coalition partners must be integrated into deep battlespace activities to ensure unity of effort. Sometimes integrating a coalition partner's military force may provide less capability than a U.S. only force; however, political realities may mandate using a less than optimal force structure to support the coalition. During Desert Storm, political demands mandated integrating coalition forces into the deep battlespace plan.[302] Unity of effort reaching the CINC's objectives was achieved and integrating coalition partners was critical for coalition cohesion; however, it was not often the most effective or efficient solution to deep battlespace actions.[303] Additionally, weapon systems which are sold to coalition partners are also politically driven. Determining which countries can purchase U.S. weapon systems is a matter for policy makers; unfortunately, these decisions have immediate warfighting impacts upon CINCs. In some cases, integrating a coalition partner's assets into an OPLAN is a planning advantage because these forces are added to a CINC's allocated warfighting assets.

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[300] Interview, 1997, track sheet #120.

[301] *Joint Pub 3-0*, III-12.

[302] Interview, 1997, track sheet #740.

[262] Interview, 1997, track sheet #720.

Another Political Dimension: Inter-Service Competition

As discussed earlier, inter-service competition impacts DBS. Political inter-play affects the weapons which warfighters eventually use in deep battlespace activities. Inter-service competition is nothing more than political interactions among the services. Each service has its own agendas for resources, personnel, and missions. Sometimes these agendas conflict; other times these missions are complementary. When discussing deep battlespace activities, there is frequent clashing of self-interested behavior among services. This natural interaction occurs because each service attempts to ensure organizational survival in a downsizing DoD environment. The inter-service competition can be either healthy or detrimental to DoD. In DBS, inter-service competition for weapon systems and control of battlespace areas occurs. Each service has deep attack assets which can destroy targets rapidly. Each service is governed by the same doctrine which describes generally how to fight as a joint team. Unfortunately, in the heated debate about future weapon procurements and where each fits in the DBS puzzle, competition is intensified by using unique interpretations of joint doctrine and relying upon service-specific doctrine. According to one senior interviewee, the weapons procurement debate intensifies inter-service competition because:

> ...services each have a specific warfighting expertise. Their [the services] perspectives are long-term which is what drives the acquisition cycle. CINCs, on the other hand, are short-term focused looking at impacts that can be made during their tenure....[304]

[304] Interview, 1997, track sheet #740.

The amount of inter-service competition over resources and missions appears overwhelmingly high. During the course of three months and many hours of telephone and personal interviews, the authors noted an incredible amount of inter-service competition. The deep attack weapons mix study, as well as the quadrennial defense review, both have increased the intensity of the competition. Regardless of service affiliation, interviewees continuously described the impact of this competition. For example, one interviewee said that competition among the services was so intense that peacetime or wartime situations have no impact on it. This same interviewee described numerous examples in Operation Desert Storm where concessions were made in DBS to appease conflicts among services. Here is one example:

> In one case, the carrier-based aircraft operating from ships in the Red Sea were offered to the JFACC for overland CAP [combat air patrol] stations in western Iraq [during Desert Storm]. This was based upon the presence of three aircraft carriers that could support the required 24 hour-a-day operations. This option was not desirable to the JFACC due to the increased number of tankers required to support Navy aircraft flying from the Red Sea as opposed to Air Force aircraft which were based closer to the CAP station. After intense lobbying by Navy planners within the JFACC, tanking aircraft were made available and Navy aircraft were finally given the requested role in the ATO [air tasking order]. In the mean time, COMUSNAVCENT [the area naval commander] repositioned one of the three aircraft carriers from the Red Sea into the Arabian Gulf which meant that 24 hour-a-day flight ops could no longer be supported in western Iraq. In the end, the Navy couldn't support the fragged CAP mission....[305]

This same interviewee said that jointness really has two meanings: jointness as intended by the 1986 Goldwater-Nichols Act and the "little league rule." The little league rule refers to the interviewee's feelings that within warfighting missions there are prevalent needs

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[305] Ibid.

for all services to play an equal amount of time and to use the warfighting assets which they bring to the battle. "In my view, the little league rule prevails in the joint arena."[306]

In another case, during the Combined Forces Command's Exercise Ulchi Focus Lens 95, allocating excess Marine air sorties after an amphibious objective area operation caused much difficulty among the air, ground and Marine commanders. In this exercise, the CINC determined that the main effort for the ground battle was with the Army; however, a Marine operation was on-going after establishing a beach front. The Marines naturally wanted to use 100% of their organic airpower to support its operations with interdiction, counter air, and close air support. Unfortunately, the Army required more CAS than the air component could provide without Marine air assets. Marine air could only provide the required additional CAS by flying fewer interdiction sorties to shape its deep battlespace. The problem of competing battlespace interests and the allocation of resources, when they are limited, was a difficult problem requiring CINC level attention.[307]

The joint force fires coordinator is yet another example of inter-service competition impacting deep battlespace activities.[308] This function, as proposed by the Joint Warfighting Center and evaluated in U.S. Atlantic Command exercises, is intended to integrate deep battlespace activities ensuring they are connected to the CINC's campaign objectives. This J-3 staff level function is supposed to synchronize actions in the planning process and is

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[306] Interview, 1997, track sheet #740.

[307] Interview, 1997, track sheet #010.

[308] U.S. Joint Warfighting Center, *Joint Force Fires Coordinator Study*, draft publication, (Fort Monroe, VA: Joint Warfighting Center, 1997). This position is being re-named the Joint Fires Element; See also Bob Hubner, "Joint Force Fires Coordinator Study," *A Common Perspective*, Volume 5(1), March, 1997, 9-11.

currently being renamed the joint fires element.[309] The scope of duties of a joint force fires coordinator was recently discussed in a co-authored message by the Chiefs of Staff of the Army and Air Force.[310]

> ...[Army/Air Force agreed]...to change the name of the Joint Forces Fire Coordinator (JFFC) so it does not connote any command function and would be an option primarily for JTF's [sic].[311]

This high level involvement was required because many interests advocated the joint force fires coordinator as a command function which conflicted with JFACC's duties.

The Air/Integrated Tasking Order Cycle Takes Too Long

An important output from the mechanistic processes discussed earlier is the air/integrated tasking order. This tasking order is used to manage the huge volume of deep battlespace activities in each component. Rules of engagement, airspace control measures, fire support coordination measures, interdiction and strategic attack targets, tomahawk land attack missiles targets, direct action, pre-planned ATACMS and Apache deep strike missions, and other classified programs are often integrated within this single document. Managing the process of tasking order development is the responsibility of many officials charged with fighting the deep battle. The term "integrated" tasking order (ITO) is a better descriptor of this tasking order as an integrative product for deep battlespace activities--air tasking order is too limited in focus.

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[309] U.S. Joint Warfighting Center, *Joint Force Fires Coordinator Study.*

[310] 172201z Dec 96, Joint Message.

[311] Ibid., 2.

Unfortunately, the process of creating a tasking order is lengthy. Normally, it takes most commands between 48 and 72 hours to create a tasking order. This cycle time is too long. A DBS plan which is centrally controlled on a CINC or JTF staff, which integrates diverse activities and creates complementary joint service actions is meaningless when the plan is too outdated to execute. The working group or operations function that modifies the tasking order during its execution becomes a more relevant and important function to DBS in these cases. In the re-assignment of missions during execution, emphasis is naturally placed on deconfliction and coordination, rather than synchronization, because synchronization takes time. That is, mechanistic structures which operate in changing and uncertain environments require time to adapt to environment uncertainty. The hierarchical and bureaucratic nature of mechanistic organizations requires various levels of approval to modify pre-approved plans. Presently, CINCs use various coping mechanisms to adapt to environmental uncertainty. However, the lengthy tasking order cycle time must be reduced to keep pace with battlespace changes. Future conflicts will involve rapid change because of battlespace impacts related to operational art facets such as depth and simultaneity. U.S. weapon systems can attack quickly, deeply, accurately, and simultaneously. Warfighting organizational structures should be modified to capitalize on the shift from planning to counter a threat, to planning to integrate all system capabilities. A tasking order is often irrelevant before it is ever distributed because of advancements in weapon systems; the fast speed that data is collected, transferred, and interpreted; and, the rapidly changing nature of battle.

What is needed now, among other things, is an integrated tasking order which can be produced and distributed within 12 hours or less. Combat units must be able to execute deep

battlespace missions within a 6 hour window to be relevant to battle changes. Otherwise, the burden for deconfliction and coordination will be on those officials executing the tasking order at the operational level. From this need to reduce tasking order cycle times stems two conclusions.

First, we should use the planning systems which are connected throughout the warfighting staffs to talk real-time, and tap into real-time databases of targets, resources, and weapon systems. The distributed planning network in place today can simultaneously reduce the amount of formal group interaction, while increasing the ability to integrate activities throughout the depth of the battlespace. This system is both secure enough to avoid penetration by hackers or enemy forces and dependable enough for warfighters to rely upon it. However, it is not currently open enough to allow coalition participation.

Second, combatant command organizational structures should rely upon new technology to push operational level decision-making and planning down to low operational levels. Targeting boards are essentially oversight or rubber stamp organizations which add little value to the warfighting effort. Instead, these bodies are forums more appropriate for political inter-service and coalition participation debates. These forums are important to the overall warfighting effort, but allowing these debates to slow down tasking order production is a problem. Integrated tasking order planners can develop target lists and produce tasking orders each day which are consistent with the JFC's intent and guidance--everyone can see the commander's video tele-conferences and read his guidance. Just how many guidance, apportionment, and targeting cells are necessary to interpret the guidance? If a command has a comprehensive master attack plan which sequences and prioritizes various deep battlespace

objectives and tasks, and key targets within the tasks are prioritized, then creating a daily attack plan is simplified greatly. Additionally, this approach to DBS is currently needed because decision-makers do not have complete information about battlespace issues. Rather, information is collected and distributed in various levels of detail, but never aggregated for decision-makers.

There Is No Joint Doctrine Governing Deep Operations

Operational doctrine should provide a framework for joint forces to operate together for maximum effect. There is no doctrine for the most dynamic and potentially critical area in joint battlespace--deep battlespace. Current deep battlespace doctrine is spread out among publications as varied as *JP 3-0 Doctrine for Joint Operations*, *JP 3-03 Doctrine for Joint Interdiction Operations*, *JP 3-05, 5.3*, and *5.5 Doctrine for Joint Special Operations*, *JP 3-13.1 Joint Doctrine for Command and Control Warfare*, *JP 3-55 Doctrine for Reconnaissance, Surveillance, and Target Acquisition Support for Joint Operations*, and *JP 3-56.1 Command Control for Joint Air Operations* as well as numerous supporting publications. The idea that deep battlespace is inherently joint and is for the most part planned, coordinated, and synchronized at the operational level indicates that a capstone doctrine for joint deep battlespace should be produced. Current doctrine represents an attempt to balance service-specific concepts and functions (like interdiction and fire support) into a compromised doctrine which includes deep battlespace. Doctrine from individual components does not suffice for deep battlespace doctrine. Among the key elements that doctrine should discuss are the integration of: interdiction, strategic attack, C^4ISR,

information warfare, deception, counter air, psychological operations, suppression of enemy air defenses, logistics, airspace management and control, targeting effects (delay, disrupt, destroy), and integration of special operations into deep battlespace. Additionally, inconsistent service descriptions of close and deep battlespaces make serious inter-service DBS discussions difficult. The lack of a common reference point makes writing joint doctrine even harder. Moreover, the sub-elements of battlespace operations are written well into joint doctrine; however, there is no overarching doctrine which discusses deep operations. Joint publications should be the capstone for deep battlespace operations, instead of individual pieces--like they are now. Current joint doctrine on deep battlespace is clearly a case where the sum of the parts do not equal the whole.

Close and Deep Battlespace Junctions

The friction between close and deep battlespaces is in many ways a microcosm of the emerging revolution in military affairs. The American modern standard of war is based on two things: quick victory and minimum casualties. A conflict executed exclusively in the deep battlespace promises to provide both things, and is therefore seductive in its appeal. In the realm of conventional mid- to high-intensity conflicts, close battle is akin to a nuclear exchange--it is a high stakes game. For the Army, executing deep battlespace operations (and building forces to execute it) is a case of attempting to minimize the risks associated with close battle, while preparing to execute it. Traditional Army doctrine (and to some extent Air Force interdiction doctrine) has always assumed close battle follows deep battle. Recent advances in deep battlespace capabilities are changing that paradigm. Current military

technological changes emphasize the ability to dominate a battlespace with near omnipotent control through widely available precision guided munitions. If a CINC can achieve battlespace dominance, then the relationship between close and deep battle may begin to reverse--close battle could be secondary to deep battle and become a supporting maneuver (much like fires now support maneuver). The dilemma is knowing when such a dominance exists.

Mechanistic Structures Are Not Well Suited for Deep Battlespace Synchronization in Future Warfare

Each geographic combatant command and its subordinate commands use mechanistic structures to cope with today's DBS problems. Although adaptive measures such as specialization and integration of functions and processes have been incorporated into their internal organizations, the effects of these mechanistic structures are limited by the underlying structure's inherent inflexibility. In short, each command has responded to its ambiguous environment by modifying internal structural functions and processes. Thus, hybrid mechanistic structures are used throughout the various commands. These structures are analogous to the asymptotic relationship between an exponential equation and its theoretical limit. High levels of interaction and integration occur; however, these hybrid structures can never completely satisfy the requirements for DBS within chaotic environments due to their physical limitations. Each command uses these mechanistic structures, and even with modifications, they have both functional and interactive limits which cannot completely adapt to uncertainty. Without shifting organizational structures from mechanistic to organic ones,

flexibility and real-time adaptability to battlespace demands are constrained severely. According to Morgan:

> As uncertainty increases, organizations typically find ways of controlling outputs...rather than controlling behaviors...[h]ierarchy provides an effective means of accounting for differences between mechanistic and more organic forms of organization...[and] are typically based on processes which are more flexible and ad hoc.[312]

One of the limiting factors in mechanistic organizations is linking centralized and decentralized processes. This linkage plays havoc in situations where decentralized decision-making is needed, but cannot occur because authority has not been delegated to a low enough level in the organization. At the operational level, decentralized decision-making rarely occurs. Rather, various levels of review and approval are required before a deep battlespace plan is executed.

The Impact of Centralization and Decentralization

There is a trade-off between centralized control and decentralized decision-making power within mechanistic organizations. An imbalance between these two control mechanisms can cause inflexibility and the inability to real-time adapt to battlespace demands.

As shown earlier, geographic combatant commands are normally composed of service and/or functional components. By placing strong emphasis on areas of operations, components may compete with each other over campaign objectives, tasks and resources. The challenge within a segmented battlespace is: Who gets to command which parts of the battlespace? Uncertainty within this sort of battlespace is difficult to control and formalized

[312] Morgan, *Images of Organizations*, 82.

command areas expose various cross-boundary problems. At the operational level, deep battlespace planning can be more decentralized to adjust quickly to uncertainty. Opportunities exist today within the commands to begin movement beyond the centralized control of a mechanistic structure. Two opportunities will be discussed briefly next.

First, Appleby said that centralization must occur before decentralization will work.[313] A strong centralized decision-making base from which to decentralize is an important prerequisite condition. The centralized base should be a point of high confidence--where commanders will be comfortable in giving up decision-making power. Decentralized decision-making power can begin from this strong base. A solid power base has been established within the combatant commands where the JFC and component commanders have tremendous decision-making power--what better place to begin evolving to an organic, highly decentralized organizational structure? Shifting to an organic structure may allow commands to respond rapidly to environmental uncertainty and change. Of course, organizational control measures must be in place to ensure the serious business of warfare is governed.

Second, today's C^4I systems provide excellent means to control warfare, yet they allow organic, decentralized organizational structures to adapt quickly. The sophisticated systems improve lateral communications and allow various intra-organizational sub-units to be networked together. Sharing information, coordinating activities, and providing feedback occurs within lateral communications loops. For example, the contingency theater automated planning system (CTAPS) is such a modern system which provides much lateral communications ability including: targeting databases, individual unit tasking information,

[313] Appleby, *Big Democracy*.

logistical data, and much more. This information can be shared simultaneously. There are other systems as well. With these systems, large amounts of information are collected, filtered and provided to decision-makers. New and emerging systems help to provide almost complete information about ourselves and the enemy. Armed with full information at low organizational levels, decentralized decision-making can more easily occur.

Conclusion

This chapter presented and discussed findings about deep battlespace synchronization functions and processes within combatant commands. Mechanistic organizational structures are used within the different commands to adapt to their unique environmental demands. Some of the commands use similar functions, such as targeting boards and air tasking order production cells. Some commands delegate their warfighting responses to joint task forces. Regardless of the functions and processes, all commands use integrating and specializing functions to various extents to help their mechanistic structures cope with changing and uncertain environments. Further, political actions and service-dominated acquisition processes impact deep battlespace synchronization. Both politics and acquisition processes are relevant issues because weapon systems and other warfighting equipment are provided to commanders through them.

Although the current mechanistic structures have been effective for the commands, future opportunities in systems and organizational structures exist. Reducing planning cycles and increasing the integration among deep battlespace activities can occur. Recommended ways to capitalize on these opportunities are discussed next.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

This research effort describes how each geographic combatant command conducts deep battlespace synchronization. To review, the research question stated: "How does a joint force command synchronize activities in deep battlespace with the greatest unity of effort while achieving campaign objectives?" The findings show that each command synchronizes deep battlespace activities differently. Relying upon integrative functions and processes, the commands use different levels of working groups with different time horizons on which to focus. The commander's guidance and intent is the yardstick which directs deep battlespace actions. The commands have different environmental factors to consider, different warfighting considerations; indeed, deep battlespace activities vary among commands. While each command has uniquely tailored its organization to manage the combination of deep battlespace activities, there are some similarities among commands.

The similarities in functions and processes were discussed throughout Chapter 5. For example, most commands have a deep operations working group which integrates interdiction targets with ground maneuvers. A tasking order production group and targeting board function is also common among the commands to ensure all subordinate components have a stake in deep attack operations. Additionally, most commands use functional component commands, rather than service components in their warfighting organizations.

In general, commanders should arrange complementary actions among joint forces to capitalize on opportunities which arise in deep battlespace--there is no single service solution. A commander's intuition combines experience and training. Operational art, as exercised by

the commander, must balance intuition with centralized and decentralized control to be successful in a complex and dynamic environment. There are both a short and long term recommendations to this research question. Recommendations on how a CINC or JFC can improve DBS are discussed next.

Short Term Recommendations-Within Five Years

There are many short term steps which commanders can take to improve DBS. An eclectic approach which combines the most integrative functions and processes among the geographic combatant commands would be a step in the right direction. These short term recommendations are focused on actions which can occur within the next five years or so.

1. Create highly specialized and integrated functions and processes to ensure unity of effort throughout the operational level. Many examples of successful specialized and integrated functions and processes were discussed earlier. Among the functions and processes to incorporate include:

    a) Create a deep operations coordination cell to help synchronize interdiction targeting with the future ground scheme of maneuver. This should be a short range function which works targeting issues between one and two days in the future. Synchronizing the JFACC's interdiction fires with the JFLCC's maneuver should be the focus of the deep operations coordination cell. This cell also should be responsible for planning lethal and non-lethal actions between the fire support coordination line and the JFLCC's forward boundary. The JFLCC owns this battlespace--he should control it.

b) Create a synchronization cell which focuses on mid-range planning (planning activities between two and seven days in the future). This cell should create the sequenced and prioritized tasks to support JFC objectives, provide apportionment recommendation rationale, and help focus the targeting process on achieving JFC objectives. Direct communications between the deep operations coordination cell and synchronization cell is critical to ensure unity of effort.

c) Create a strategy cell which concentrates on long range planning (more than seven days into the future and the next campaign phase). This cell should create a single interpretation of the JFC's long range guidance and intent to focus all other deep planning activities. It should develop future deep battle courses of action, campaign phases, and branches and sequels.

d) Create a specialized targeting cell which focuses exclusively on picking the right targets to support specific operational tasks. This cell should include both operations and intelligence personnel so that combat assessment and target analysis information can be connected tightly with target selection. Carefully articulated measures of effectiveness for the various lethal operational tasks must be distributed to ensure the targeting process satisfies the supported task.

e) Create a separate working group whose exclusive function is to produce the tasking order which integrates deep battlespace activities. This function is highly specialized and should be accomplished by personnel who can focus entirely on it. It is another short range specialized function needed to create an effective integrated tasking order.

f) Create a network organization which connects all of the various long, mid, and short range working groups. This network organization should meet daily to discuss mid-range battlespace plans and distribute information to other groups about the direction of future operations. The network can be connected via a classified computer network or via daily meetings. The network set-up is intended to connect upper, middle, and lower level working groups together so that information is shared throughout the operational planning level.

g) Form a JTF level working group to focus on integrating component level warfighting inputs. Receiving and acting upon component inputs is an important part of adapting to environmental conditions. This specialized working group should focus on matching the commander's daily guidance with component near-term battlespace needs.

h) Create other specialized groups for command and control warfare, information warfare, deception, special operations, and execution that are also networked together. These specialized planning groups can focus on very narrow battlespace issues requiring full time thinkers and should have a feedback mechanism to communicate with other specialized working groups. Deep battlespace activities from these groups should be integrated within the synchronization cell.

2. Staff every operational function and process with members from all components and services who are knowledgeable in the specialized function at hand. JTFs should be integrated operations combining the talents of all services, incorporating all assets available, and, most importantly, capturing all deep battlespace activities --both lethal and non-lethal. Joint service

members should have appropriate experience, especially in deep battlespace planning, or should receive sufficient training to participate productively in creating the deep battlespace plan.

3. Create a master integration plan in the strategy cell which sequences and prioritizes operational tasks supporting campaign objectives. This master plan should be the complete set of all objectives, tasks, and targets for a campaign. It should include phasing and reflect the scheduling realities of deploying forces from other theaters. Within the tasks should be prioritized key targets which when aggregated represent the total population of targets affecting that task. Additionally, a holistic view of targeting should be used to ensure the impact of destroying specific targets is understood throughout that complete target set.

4. Create a daily attack plan which sequences deep battlespace activities to ensure complementary actions occur, conflicts are resolved, and fratricide potential is minimized. The master integration plan should be the basis from which the daily attack plan is drawn. Additionally, the daily attack plan should be the basis for the daily tasking order. All targets beyond the fire support coordination line should be considered deep targets. Additionally, when a daily attack plan is based on a sequenced and prioritized master integration plan, calculating the required apportionment is more objective and verifiable because targeting emphasis is pre-planned, rather than reactionary or political.

5. Establish close and deep supported commanders. These relationships are key facets for unity of effort through unity of command. The JFLCC should be the supported commander from the forward line of troops to the forward boundary of his area of operation. The JFACC should be the supported commander from the JFLCC's forward boundary to the outer

boundary of the area of responsibility. The supported commanders should be responsible for activities within their area of operations, have tasking authority, and total control of operations within them. By clearly and unequivocally establishing supported commanders, close and deep battlespace activities can be synchronized under each commander. Unity of effort becomes a relatively simple task when a commander controls all activities within his area of operations.

6. Establish memorandums of understanding/agreement with inter- and non-governmental organizations. When there is actual warfighting, these memoranda should agree to make the DoD the supported commander with authority to integrate non-DoD activities with other lethal and non-lethal actions. During non-warfighting situations, the agreements should appoint a senior federal official to integrate both DoD and non-DoD activities throughout the theater. Unity of effort must include all activities from the many stakeholders.

7. Write joint doctrine which discusses how CINCs and JFCs should conduct deep operations. Joint doctrine which addresses integrating the many different deep battlespace missions, functions, and tasks is needed. The current fragmented approach to joint doctrine which focuses on missions and functions only complicates deep battlespace planning and execution issues.

Additionally, the Navy needs to revise its tenets in *NDP 1: Naval Warfare*. For example, the tenets of battlespace dominance and power projection are currently focused on open ocean and littoral battlespaces. For true movement from "forward...from the sea," Navy tenets must be broadened to include air-land battlespace domains. Future warfare will be joint and Navy doctrine must become more closely aligned with the other services.

8. Organize, train, equip and fight as JTFs. Service components do not complement neatly the warfighting roles in which their forces fight. Services are chartered currently with organizing, training, and equipping their personnel. At the tactical level this works well because each service has a particular warfighting expertise. However, at the operational level, training and equipping through service efforts seems disconnected from the JFC's needs. Reorganizing the military forces by JTFs, rather than by service components allows much integration among battlespace functions during daily peacetime working relationships. The adages which say "train like you fight" and "build habit patterns in peacetime that you will need in combat" are statements which do not reflect operational thinking. Service components should be absorbed into JTF structures so that DoD can train like it fights--this too is a short term fix.

These short term recommendations are only intended to give a pragmatic next step for JTFs working through the DBS challenge today. These recommendations rely upon current system technology. Additionally, they require no new personnel or infrastructure. They are each oriented towards changing a command's internal organizational structure to adapt more effectively to environmental change and uncertainty. Improving functions and processes can help improve current warfighting efforts. These recommendations are extensions of what is occurring today within the commands to varying degrees. Fortunately, the lack of a peer competitor is helping the DoD move away from a threat-based focus toward a capability-based one. This focus on capabilities opens up new possibilities in the future.

Long Term Solution-Approximately Ten Years in the Future

Given the emerging state of technology, creating highly integrated battle management systems are not far out of sight. Instead of integrating new capabilities into existing warfighting organizations as they are developed, the time is now to begin thinking how DoD should incorporate emerging systems and change warfighting structures. As revolution in military affairs writers have said, new technology must be incorporated into organizational processes and doctrine before it can be considered a paradigm shift. For DoD to take the emerging systems and fully capitalize on their potential, decision-makers must consider organizational changes to nurture the new capabilities. Deep battlespace synchronization functions and processes are anachronistic when one considers battlespace issues in the future. After spending over 1,000 direct labor hours researching, analyzing, and discussing organizational and battlespace issues, the authors feel compelled to offer a long term recommendation on how to reorganize warfighting organizations to exploit opportunities which will be presented when emerging systems arrive. The long term recommendations are focused about 10 to 15 years in the future--around 2007-2012.

The recommendations center around a new organizational structure which would be highly adaptive and flexible. It would have tremendous decentralized decision-making power at the operational level, yet strong control mechanisms within the new systems-- this new structure is called "The Organic Joint Task Force."

Putting the System of Systems to work

Admiral Owens' "System of Systems" is a forward thinking view of battlespace

management system technology that is applicable to this research. His vision of advanced systems which can truly integrate other systems to provide complete battlespace information provides great opportunities for organizational change. Owens promotes technology-based tenets such as battlespace awareness, advanced C^4I, and widely available precision attacks which will transform approaches to warfare in the future.[314] Future warfare will no doubt change through technological advancements--DoD's mechanistic organizational structures must change too.

Owens' system may include an umbrella of integrated sensors such as: highly reactive space-based assets; manned aerial vehicles such as JSTARS; subterranean systems; and, multi-functional unmanned aerial vehicles that operate throughout the electromagnetic and optic spectrums to provide complete battlespace information in almost real-time. Included in such a system would be a network of systems providing complete information about friendly forces, including resource availability, friendly order of battle, and the ability to re-task weapon systems in real-time through the system. The information provided by such a system should show decision-makers the enemy's intent. Complete battlespace information includes enemy force locations, operations, and armament, as well as coalition force information. The complete set of all enemy targets, including current combat assessment results would be available to decision-makers. Adverse weather or nighttime conditions should have no degrading effect on the system. Additionally, the system should share information rapidly and automate manpower-intensive functions such as target identification and force packaging.

With complete information provided by the system of systems, the ability to rapidly

[314] Owens, "The Emerging System of Systems," 37.

destroy enemy forces or other targets also must be integrated within it. The ability to destroy any combination of targets in the battlespace with a nearly 100% probability of kill should be the goal of such a system. However, precision guided attacks are not the only method of attack that future warfare should rely upon. When fighting low technology enemy forces, the capability to destroy masses of troops or supplies must be available within the system too. Wide area munitions, cluster bombs, and other acceptable weapons which destroy large numbers of troops, and supply and assembly areas may be necessary to fight low technology or unconventional forces.

The battlespace of the future allows no enemy forces to operate without detection from one of the many integrated systems. When armed with complete information about enemy and friendly forces, there is no need for battlespace boundaries used within the segmented battlespaces of today. A fire support coordination line is moot in future battlespace because precision attacks, coupled with complete information about friendly and enemy troop locations allows offensive space, air, sea, or land-based attacks throughout enemy locations. Having separate ground, air and sea commanders is irrelevant because the JFC would have all the information available to make decisions almost instantaneously. In the battlespace of the future, there is no need to distinguish between close and deep battlespaces.

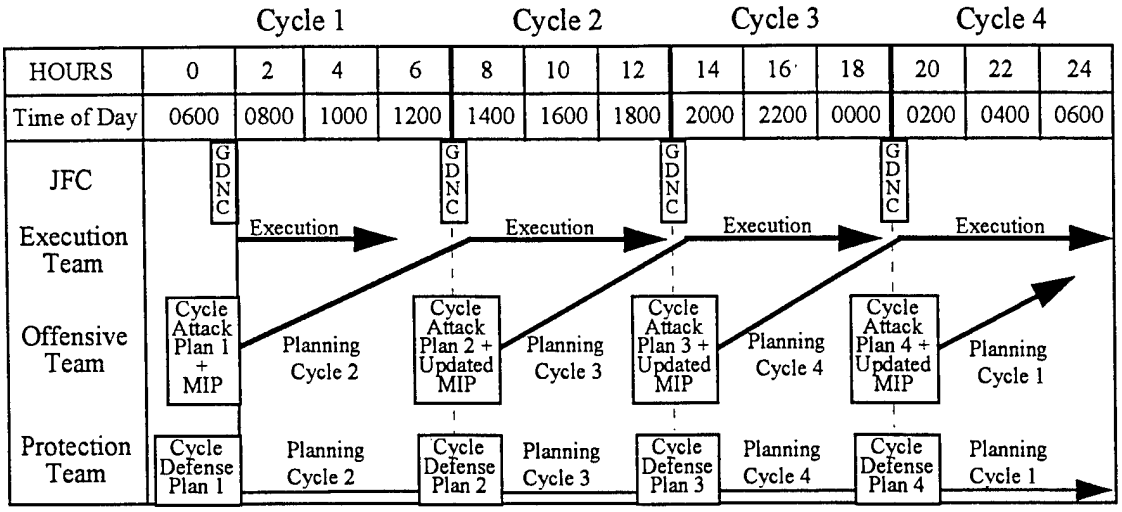
The Organic JTF

Given the incredible capability of emerging systems, how will future JTFs fight with these new tools? The short term solution proposed an interim step which shortens the planning and execution cycle times and modifies the mechanistic structures already in place.

Technological advancements in sensors and deep attack systems will allow even shorter cycle times in the future. Commanders will have the capability to plan and execute offensive attacks within a four to six hour cycle. Long range planning may be considered 12 to 24 hours in the future. Mid-range planning could be reduced to 6 to 12 hours prior to execution. Short range planning could include activities occurring less than six hours in the future--maybe within the current planning cycle.

The CINC and JFC will interact frequently, however, CINC guidance may never project more than a day or so into the future because political and strategic considerations will be changing frequently. The organic JTF can respond quickly to a commander's guidance, therefore battlespace can be shaped more quickly. As a result, the JFC must also provide guidance more frequently. For example, guidance for each four to six hour period may regulate the JTF's battle rhythm. Figure 24 shows an example of a typical battle rhythm in the future. As the lag time between JFC guidance and execution can be shortened, the nature of a JFC's guidance can change to more specific tasking. As the JFC can see and hear how his guidance is executed within the system, almost real-time, subsequent guidance likely will be even more precise. This ability to change planning and execution almost real-time places tremendous controlling power in the hands of the JFC.

FIGURE 24 - TYPICAL ORGANIC JTF BATTLE RHYTHM



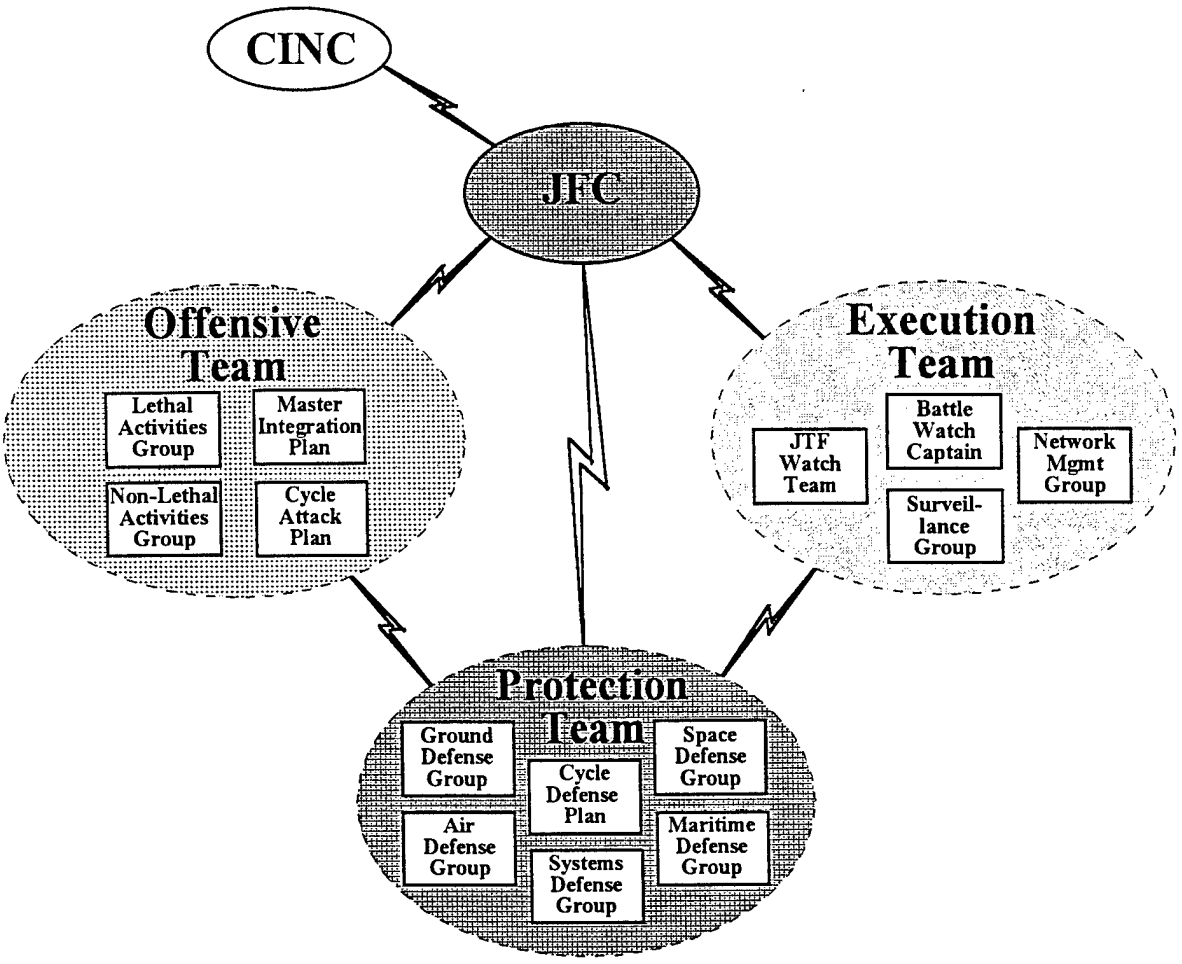
Within the organic JTF, operational level processes can be decentralized and occur within organizational teams. These teams should have the authority to translate JTF guidance into specific lethal and non-lethal decisions--in other words, in the organic JTF, teams should have the decision-making power to take the JFC's guidance and to task specific tactical units through the system. The organic teams should have broad charters with team composition and organization left to the discretion of the team leader. Because teams are organized by battlespace focus, intra-team interaction ensures activities are truly synchronized with unity of effort. Additionally, inter-team interactions are minimized because of little battlespace overlap.

To implement the organic JTF, one JTF should be selected as the prototype. Within this prototype organic organization, organizational problems should be solved, team interaction protocols developed, and system outputs understood. Once the prototype JTF has streamlined its processes, then joint doctrine should be written to capture the basic elements of the organic JTF. Although all JTFs should be customized to their unique environmental

demands, joint doctrine which provides an overview of the integrated organic structure should be captured.

The organic JTF should use the inherent flexibility of self-organizing teams to plan and execute JTF warfighting missions. The JFC should be the central interactive person among the teams. For example, an organic JTF may consist of an offensive, protection, and execution team. Figure 25 shows the composition of this typical organic JTF. Again, each organic JTF should be uniquely structured to cope with its environmental demands; however, in general, teams should have the decentralized power to make operational level decisions based on JFC guidance. Intra-team specialization decisions would rest within the team. For example, integrating non-lethal actions within an offensive team might involve several working groups. On the other hand, in a humanitarian relief operation an offensive team probably would not exist.

FIGURE 25 - TYPICAL ORGANIC JTF



The Teams

The typical organic JTF shown above depicts three teams which may be used by a JFC to focus his warfighting effort. Notional functions within the teams are presented to show some of the responsibilities which may be assigned within the teams. Inputs, outputs, and responsibilities of the three teams will be discussed briefly next.

The "offense team" would be responsible for all lethal and non-lethal activities within enemy territory. From the forward line of troops to the edge of the enemy's territory, the offensive team would integrate all actions within this battlespace. The offensive team would

have two major inputs: one from the JFC in the form of guidance and the other being the various system databases and information rich displays used to make decisions. The offensive team would have one major output: a cycle attack plan which satisfies the commander's intent and tasks specific tactical units for execution. Before a conflict begins, the offensive team also should be responsible for creating a master integration plan which identifies specific targets in prioritized and sequenced order for attack, as well as the numerous non-lethal activities which must occur.

An "execution team" would be responsible for monitoring cycle attack and defense plans and re-assigning missions and tasking in real-time to account for battlespace changes which must be addressed immediately. For example, if enemy forces choose a new axis of approach, then pre-planned targets may have to be altered to keep ground forces from having a massive engagement in the next several hours. The system of systems would allow for rapid re-tasking through system connections between the tactical and operational levels. Enough information to find and destroy targets would be provided almost instantly to the tactical unit. JFC direction and system products are the major inputs. Achieving the JFC's intent with an executed cycle plan is the major output.

The JFC should be the director of execution. In this position, the JFC becomes like the coach of a football team. He calls the battlespace plays occurring in the near future through his guidance to the offensive team. Then, he watches the plays unfold in real-time to see if they achieve his intent. The JFC can continually modify his game plan based on execution realities and reactions from his opponent. If the commander needs to re-task units during execution, he knows what he wants to happen in the next several hours, and can set-up

his future moves by changing the offensive team's plan when it is executed. Changes in the short term battlespace plan by the JFC could also occur through the execution team, rather than the offensive team. The JFC could decide to handle battlespace changes through his guidance to the offensive team, or by having the execution team modify the current cycle plan, if necessary. A short planning cycle and ability to re-assign missions with accuracy in real-time provides the JFC with incredible flexibility and control at the operational level. For example, if the JFC desires to re-assign missions during execution for some reason, he could simply direct a watch officer to re-assign the mission through the system. The watch officer, using voice commands to a virtual battlespace computer interface, could direct a nearby unmanned aerial vehicle to fire its "high power microwave pulse" or "flying plate warhead" against the selected target. The concepts are already proven.[315] Automated combat assessment would make a real-time damage assessment and update the target database which the offensive team uses to make targeting decisions.

The "protection team" should be responsible for defending all friendly forces located in friendly territory. This protection would take the form of ground, air, and sea defense from enemy attacks on friendly territory. Like other teams, it should operate on a four to six hour cycle for planning, with its major input coming from the JFC's guidance. Its output would be a cycle defense plan which assigns JTF assets to conduct protective activities for U.S. and allied forces, lines of communication, and the system of systems. Physically protecting friendly forces and war-making capability is important. Nevertheless, protecting the systems network which provides complete information to decision-makers is crucial.

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[315] U.S. Air Force Scientific Advisory Board, *Report on UAV Technologies and Combat Operations*, Volume 1, SAB-TR-96-01, (Washington, D.C.: The Pentagon, 1996), 6-5.

In summary, the organic JTF is an adaptive and flexible organic structure which may allow warfighting commands to capitalize on emerging technologies and to react rapidly to chaotic environments. Complete battlespace information about both friendly and enemy orders of battle is within our visible futures. The mechanistic JTF organizations in place today will be unable to adapt rapidly enough to exploit these technological improvements. The rapid integration and distribution of information by the emerging JTF systems network will allow forces to respond more quickly to battlespace changes. However, information is not the sole solution, neither is computer hardware and software. A commander's intuition is key. Positioning the JFC to oversee execution of warfighting activities allows him to truly apply operational art, to rely upon his appreciative system, and, ultimately, to achieve his campaign objectives.

Priorities for Future Research

Priorities for future research are oriented toward three areas: operational art, systems technology, and organizational structures. First, more research is needed on the relationship between operational art and deep battlespace synchronization. Discussions on multivariate models and appreciative systems were offered; however, no detailed findings could be uncovered because of the limitations of a case study research design. A study which can analyze operational art directly, using a participant-observation or ethnographic research design may provide more insight into deep battlespace synchronization and the role which a commander's intuition plays.

Second, a detailed analysis of the impact of new systems technology is needed. Technology is changing quickly. Services are each creating new systems which satisfy their tactical and tactical-operational level needs. DoD is creating a "high level architecture" which is supposed to integrate future systems. Research on the direction and impact of future system acquisitions from both individual service and joint perspectives is needed. The newly created Principal Deputy Assistant Secretary of Defense for Command, Control, Communications, and Intelligence position indicates the need for high level policy management to ensure future system integration occurs. The C^4ISR Integration Task Force for DoD is thinking about ways to integrate systems. More research is needed because the possible impacts on future warfighting are so profound.

Finally, research is needed on new organizational structures within warfighting units at the operational level. Current mechanistic structures are coping with change and uncertainty; however, their days are numbered. Movement toward new organic, responsive organizations may help DoD react more effectively to its challenges in the 21st Century. The organic JTF is one idea. There are other possibilities. Much research exists within the management sciences on self-learning teams, self-learning organizations, and other innovative modern organizational structures. Research which can extend the current writings on modern organizational structures and apply them to DoD's warfighting efforts would be another significant contribution to the joint military operations literature.

In closing, deep battlespace synchronization is an incredibly complex topic. Nonetheless, research on this topic at the operational level can provide decision-makers with

new ideas to improve their warfighting efforts. Today, we have the luxury of time to think about our new systems and structures. Tomorrow, we may not be so lucky.

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APPENDIX A

DEEP BATTLESPACE SYNCHRONIZATION: ACHIEVING UNITY OF EFFORT

Sample Interview Sheet

Introduction: Me, purpose of study and promise of confidentiality. With your concurrence, this session will be taped to help with our data analysis. We'll never reveal any specific information about any of our interviewees and what they said. Do you agree_____.

Date _____ Time _____ Interview Type _____

Interviewees Name/Rank _____Organization _____

Job Title _____ Job Tenure _____

Work Level _____ Service Tenure _____

1. What does the term deep battle synchronization mean to you?

2. Does your command synchronize deep battle actions with any formal process? If so, what is it? Is it documented? Can we have a copy of the documentation sent to us?

3. Are there any joint pubs that help your command with the way it does deep battle synchronization? If so, what are they? Have you interpreted joint doctrine to help execute your JSCP tasking/crisis actions? Does your command have any SOPs, policy, memorandums, regulations, or other documentation that tells how your command does deep battle synchronization?

4. What is the greatest obstacle to deep battle synchronization? Do you have any problems associated with doctrine, training, parochialism, etc?

5. Has your organization used exercises to practice deep battle synchronization? Have there been lessons learned? Were they recorded? If so, where? Can we get a copy?

6. Does "economy of force" as a principle of war have any real-life value to your organization when planning deep battle synchronization? Does your command value "least cost" or other efficient solutions to deep battle synchronization?

7. Does "unity of command/effort" as a principle of war have any real-life value to your organization when planning deep battle synchronization?

8. Do you feel that emerging systems (e.g. C4I, UAV, Space assets, C2, etc) will appreciably change the way your command approaches deep operations?

9. Do the services bring the right mix of deep fire/operations weapon systems to the fight?

10. What sort of effectiveness measurements does your organization use to measure deep battle synchronization? Are there any measures of efficiencies that your organization uses or is considering for usage?

11. Did I miss any obvious areas within your command that relates to deep battle synchronization, efficiency & effectiveness? If so, what are they?

Additional comments / Notes:

Thank you for your time.

APPENDIX B

LIST OF ABBREVIATIONS

ABCCC	Airborne Battlefield Command and Control Center
ACC	Air Component Command
ACOM	U.S. Atlantic Command
ACQ	Acquisition System
AO	Area of Operations
AOA	Amphibious Objective Area
AOR	Area of Responsibility
ATO	Air Tasking Order
ATACMS	Army Tactical Missile System
AWACS	Airborne Warning and Control System
AWC	Air Warfare Commander
BCD	Battlefield Coordination Detachment
BCE	Battlefield Coordination Element
BCWG	Battlefield Coordination Working Group
BES	Budget Estimate Submission
BMS	Battlefield Management Section
C2F	Commander, Second Fleet
C^3CM	Command, Control and Communications Counter Measures
C^4ISR	Command, Control, Computers and Communications Intelligence, Surveillance and Reconnaissance
C6F	Commander, Sixth Fleet
CACC	Commander, Air Component Command
CAP	Combat Air Patrol
CAS	Close Air Support
CENTCOM	U.S. Central Command
CFC	Combined Forces Command
CG	Chairman's Guidance
CINC	Commander in Chief
CINCPAC	Commander in Chief, U.S. Pacific Command
CIS	Commonwealth of Independent States
CJCS	Chairman, Joint Chiefs of Staff
CJTF	Commander, Joint Task Force
COMUSNAVCENT	Commander, U.S. Naval Forces, Central Command
CPA	Chairman's Program Assessment
CPR	Chairman's Program Review
CTAPS	Contingency Theater Automated Planning System
CTB	Combined Targeting Board
CVBG	Aircraft Carrier Battle Group
CWC	Composite Warfare Commander

LIST OF ABBREVIATIONS (CONTINUED)

DBS	Deep Battlespace Synchronization
DBSL	Deep Battlespace Synchronization Line
DCA	Defensive Counter Air
DEA	U.S. Drug Enforcement Agency
DJFLCC	Deputy Joint Force Land Component Commander
DJTFAC	Deployable Joint Task Force Augmentation Cell
DOCC	Deep Operations Coordination Cell
DoD	Department of Defense
DPG	Defense Planning Guidance
EUCOM	U.S. European Command
FCWG	Future Coordination Working Group
FEBA	Forward Edge of Battle Area
FSCL	Fire Support Coordination Line
GAO	General Accounting Office
GAT	Guidance, Apportionment and Targeting
GCC	Ground Component Command
ITO	Integrated Tasking Order
JCS	Joint Chiefs of Staff
JFACC	Joint Force Air Component Commander
JFC	Joint Force Commander
JFE	Joint Fires Element
JFFC	Joint Force Fires Coordinator
JFLCC	Joint Force Land Component Commander
JFMCC	Joint Force Maritime Component Commander
JGATC	Joint Guidance Apportionment and Targeting Cell
JIPTL	Joint Integrated Prioritized Target List
JOPES	Joint Operational Planning and Execution System
JPD	Joint Planning Document
JPOTF	Joint Psychological Operations Task Force
JPT	Joint Planning Team
JROC	Joint Requirements Oversight Council
JSCP	Joint Strategic Capabilities Plan
JSOTF	Joint Special Operating Forces Task Force
JSPS	Joint Strategic Planning System
JSR	Joint Strategy Review
JSTARS	Joint Surveillance, Targeting, Acquisition and Reconnaissance System
JTASC	Joint Training, Analysis and Simulation Center
JTCB	Joint Target Coordination Board
JTF	Joint Task Force
JTIDS	Joint Tactical Information Distribution System

JTL	Joint Target List
JULLS	Joint Universal Lessons Learned System
JWCA	Joint Warfighting Capabilities Assessment
JWFC	Joint War Fighting Center
MAAP	Master Air Attack Plan
MAGTF	Marine Air-Ground Task Force
MEF	Marine Expeditionary Force
MIP	Master Integration Plan
NATO	North Atlantic Treaty Organization
NCC	Naval Component Command
NMS	National Military Strategy
NPC	National Planning Committee
OCA	Offensive Counter Air
OPLAN	Operations Plan
OPT	Operations Planning Team
OSD	Office of the Secretary of Defense
PACOM	U.S. Pacific Command
PBD	Program Budget Decision
PDM	Program Decision Memorandum
POM	Program Objective Memorandum
PPBS	Planning, Programming, Budgeting System
QDR	Quadrennial Defense Review
RIPL	Reconnaissance, Interdiction Planning Line
RMA	Revolution in Military Affairs
ROK	Republic of Korea
SCC	Surface Component Commander
SETF	Southern European Task Force
SHAPE	Supreme Headquarters Allied Powers Europe
SOF	Special Operations Forces
SOP	Standard Operating Procedure
SOUTHCOM	U.S. Southern Command
SPITL	Single Prioritized Integrated Target List
TACON	Tactical Control
TFCC	Tactical Flag Command Center
TLAM	TOMAHAWK Land Attack Missile
UAE	United Arab Emirates
U.N.	United Nations
UNAAF	Unified Action Armed Forces
USCINCCENT	U.S. Commander in Chief, Central Command
VCJCS	Vice Chairman of the Joint Chiefs of Staff
WMD	Weapons of Mass Destruction
XINT	Extra Interdiction